Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

Review of the Commission's Rules	)	
Regarding the Pricing of Unbundled	)	
Network Elements and the	)	**WC Docket No. 03-173**
Resale of Service by Incumbent	)	
Local Exchange Carriers	)	

DECLARATION OF MICHAEL J. MAJOROS, JR. ON BEHALF OF MCI

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I. STATEMENT OF QUALIFICATIONS

My name is Michael J. Majoros, Jr. I am Vice President of Snavely King Majoros O'Connor & Lee, Inc. ("Snavely King"), an economic consulting firm located at 1220 L Street, N.W., Suite 410, Washington, D.C. 20005. I joined Snavely King in 1981. Prior to joining Snavely King, I worked at Van Scoyoc & Wiskup, Inc. where I performed various management and regulatory consulting projects in the public utility field, and Ernst & Ernst, where I was a member of the audit staff. I received a degree in accounting from the University of Baltimore, School of Business.

Snavely King was founded in 1970 to conduct research on a consulting basis on the rates, revenues, costs and economic performance of regulated firms and industries. The firm has a professional staff of 14 economists, accountants, engineers and cost analysts. Most of the firm's work involves the development, preparation and presentation of expert witness testimony before Federal and state regulatory agencies. Over the course of the firm's 33-year history, its members have participated in over 600 proceedings before almost all of the state commissions and all Federal commissions that regulate the public utilities, telephone and transportation industries.

Since joining Snavely King I have provided consultation specializing in accounting, financial and management issues. I have testified in over 130 regulatory proceedings. A significant number of these appearances have related to the subject of telecommunications and public utility depreciation. I have negotiated for and/or represented various user groups in fifteen of the Federal Communications Commission's ("FCC's") three-way Triennial Depreciation Represcription conferences. I have also participated in several regulatory proceedings in which depreciation was an issue that was ultimately settled.

II. BACKGROUND AND SUMMARY OF DECLARATION

The purpose of this declaration is to address the depreciation expense issues raised in the FCC's TELRIC Notice of Proposed Rulemaking ("NPRM").[1]

In section III, I will discuss certain depreciation fundamentals and explain that the ILECs have a built-in incentive to project shorter depreciation lives. In section IV, I will demonstrate that the FCC's regulated projection lives remain appropriate for TELRIC. These lives are the theoretically correct forward looking lives, they are the only unbiased estimate of depreciation lives, and they are supported by the empirical evidence. Indeed, both depreciation reserve levels and actual retirement experience show that the FCC lives are, if anything, too short. In section V, I will demonstrate that financial book lives and planning lives remain inappropriate. These methods have a built-in bias towards shorter lives, and, in fact are far too short as evidenced by the same empirical evidence that supports the FCC lives. In section VI, I will discuss net salvage. I will show that to the extent that the FCC adopts GAAP financial lives, despite the strong reasons against doing so, it must also adopt the GAAP principle that prohibits including negative salvage value in depreciation – which would substantially decrease depreciation expenses. In fact, this principle should be adopted in any event. In section VII, I discuss straight-line, accelerated, and decelerated depreciation, and conclude (1) that straight-line depreciation should continue to be used, but that (2) if the Commission chooses to change from the current straight-line depreciation method to accelerated depreciation methods for some accounts, it must also recognize that decelerated methods may equally well be appropriate for

[1] Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers, WC Docket No. 03-173, Notice of Proposed Rulemaking ("NPRM"), FCC 03-224, released September 15, 2003.

other accounts. Finally, in section VIII, I will discuss the FCC's questions with respect to early retirements.

In sum, I demonstrate in this declaration that there is no valid reason to change depreciation methods or lives for the purposes of TELRIC. If the Commission nevertheless determines to make such changes, it must do so in a way that accounts for all the corresponding changes that would be warranted by the method it adopts.

III. DEPRECIATION FUNDAMENTALS

The TELRIC NPRM states that, "there are two components of depreciation - the useful life of the asset, and the rate at which the asset is depreciated over that useful life."[2] This characterization is too simple. It ignores net salvage value, for example. In this section, therefore, I provide an overview of the technical aspects of depreciation in order to provide a basic understanding of the issues, and also discuss carriers' incentives in setting depreciation rates. I will start with a discussion of plant additions, retirements, and balances.

Telephone carriers record their plant investment activity in the individual plant accounts set-forth in the FCC's Uniform System of Accounts ("USOA"). Additions, retirements, and balances relate to individual USOA accounts, such as that for poles. An annual addition is the original cost of plant (asset) added to the account during the year. An annual retirement is the original cost of an addition that had been made in a prior year and is now removed from service. The net of these two items – additions less retirements – is added to the plant balance from the beginning of the year and becomes the ending plant balance. That ending plant balance becomes next year's beginning plant balance, and the process repeats itself.

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[2] Id. ¶ 93.

Depreciation expense is a charge to operating expense to reflect the recovery of the cost of a carrier's capital investment in plant and equipment. Telephone carriers' depreciation rates are based on three fundamental parameters: a service life, a dispersion pattern, and a net salvage ratio. A service life is the period of time during which depreciable plant (and equipment) is in service.[3] A dispersion pattern is a pattern of retirements around an average service life. In the case of economic projection lives, this would be the pattern around the average life of new additions to plant. Finally, net salvage value is the gross salvage for the property retired less its cost of removal.[4] Dispersion patterns and net salvage values were ignored in the NPRM. The latter in particular has significant consequences, as discussed in section VI below.

It bears mentioning that, given the capital intensity of the telephone industry, it is impossible to track and depreciate every single asset that a carrier owns. Carriers own millions of assets, represented by hundreds of millions of dollars of investment. Telephone depreciation is, therefore, based on a group concept, which relies on averages of the service lives and remaining lives of the assets within a specific group. The group characteristic, as well as the dispersion patterns, add to the complexity of accurately determining depreciation.

Using the group concept, and the service-life, dispersion pattern, and net salvage ratio, annual depreciation expense is calculated by applying a depreciation rate to plant balances. The parameters are used in conjunction with the straight-line method and either the whole-life or remaining life techniques. Telephone depreciation expense is typically calculated using the straight-line method over service life, which results in an equal share of the cost being assigned

[3] Public Utility Depreciation Practices, August, 1996, National Association of Regulatory Utility Commissioners ("NARUC"), p. 321.
[4] NARUC, p. 322.

to expense each year over the service life of assets. The average remaining life technique is based on aged plant and takes accumulated depreciation (prior collections) into consideration in the calculation of the depreciation rate. Therefore, the remaining life technique is not appropriate for TELRIC studies. UNE prices are based on new investment; they should reflect the use of economic projection lives and the whole-life technique. Therefore, the NPRM asks about a comparison of the straight-line method and accelerated depreciations methods, which both use the whole-life technique. I discuss this comparison in detail in section VII below.

Once annual depreciation has been calculated using either the straight-line or accelerated methods, the resulting expense (also called accrual) is included, just as any other expense, in the revenue requirement and from there it is charged to the carrier's customers. In this case, the revenue requirement is a TELRIC price, and depreciation is an element of the capital cost recovery factor used to develop that price.

Depreciation is a non-cash expense, in contrast to payroll expense, for example, which involves the current outlay of cash. That is, depreciation does not involve a specific payment during the year. Both depreciation and payroll are included as expenses in the income statement and cost of service, but no cash flows out of the company for depreciation expense. Instead of reducing the cash account, depreciation expense is recorded on the income statement as an expense and simultaneously recorded on the balance sheet in the accumulated depreciation account, which is, in turn, shown as an offset to plant in service. Accumulated depreciation is a reduction to rate base.

Accumulated depreciation (sometimes called reserve) is, in essence, a record of the previously recorded depreciation expense; therefore, at any point in time, the accumulated depreciation account represents the net accumulated amount of the original cost of assets and net salvage that has been recovered to date. Accumulated depreciation can be considered a measure of the depreciation recovered from ratepayers.

Depreciation is a legitimate expense, and it is appropriate to reflect depreciation in the development of a regulated price. However, since it is based on a substantial amount of judgment as to proper service lives and dispersion patterns, for example, and arcane analytical procedures, methods and techniques such as the group concept, the measurement of depreciation and the calculation of the expense leave substantial room for manipulation and thus must be assessed carefully in an unbiased manner.

Furthermore, it must be remembered that in a regulated industry, it is in the carrier's best interest to maximize depreciation expense whenever possible. Since depreciation expense is allowed as an element of the price, it produces a pure cash inflow to the carrier. Since there is no corresponding cash expenditure (outflow), the cash is retained by the carrier to be used for any purpose it chooses. In contrast, in unregulated companies and industries, depreciation does not provide such a cash inflow, because in those cases only the market drives prices, not regulation.

Because carriers have an incentive to set depreciation too high, it is important to ensure that depreciation is set in an unbiased manner. This includes the choice of service lives, which is a significant focus of the NPRM. If these lives are too short, carriers will be able to recover too much for depreciation and ratepayers will pay too much. The two tables below compare the effect of accurate and inaccurate service lives. Table 1 illustrates a straight-line, whole-life depreciation rate, assuming a 10-year average service life and zero ("0") percent net salvage.

Table 1

Straight-Line Whole-Life Rate
Assuming 10-Year Life and 0% Net Salvage

$$\frac{100\%-(0\%)}{10 \text{ yrs.}} = 10.0\%$$

Each year the 10.0 percent rate would be applied to plant in service to produce an annual depreciation expense. In depreciation analysis it is axiomatic that the shorter the life, the higher the resulting depreciation rate. The following table shows the impact of a shorter life.

Table 2

Impact of Reducing a Life From 30 Years to 10 Years

30 year life = 100%/30 = 3.3%

10 year life = 100%/10 = 10.0%

If the life should have been 30 years, the rate would have been 3.3 percent rather than 10 percent. The shorter the life, the higher the rate. If the life is too short, the resulting rate is obviously excessive.

An excessive depreciation rate is one that produces more depreciation expense than is necessary to return a company's capital investment over the life of the asset. The concept of excessive depreciation was explained as follows by the U.S. Supreme Court in a landmark 1934 decision, Lindheimer v. Illinois Bell Telephone Company:

> If the predictions of service life were entirely accurate and retirements were made when and as these predictions were precisely fulfilled, the depreciation reserve would represent the consumption of capital, on a cost basis, according to the method which spreads that loss over the respective service periods. But *if* the amounts

> charged to operating expenses and credited to the account for depreciation reserve are excessive, to that extent subscribers for the telephone service are required to provide, in effect, capital contributions, not to make good losses incurred by the utility in the service rendered and thus to keep its investment unimpaired, but to secure additional plant and equipment upon which the utility expects a return.
>
> Confiscation being the issue, the company has the burden of making a convincing showing that the amounts it has charged to operating expenses for depreciation have not been excessive. That burden is not sustained by proof that its general accounting system has been correct. The calculations are mathematical, but the predictions underlying them are essentially matters of opinion. They proceed from studies of the behavior of large groups of items. These studies are beset with a host of perplexing problems. Their determination involves the examination of many variable elements and opportunities for excessive allowances, even under a correct system of accounting, [are] always present. The necessity of checking the results is not questioned. The predictions must meet the controlling test of experience.[5]

As I show in what follows, the FCC lives, but not the ILECs' financial lives, meet the test of experience. The FCC lives result in relatively accurate (if somewhat too high) depreciation rates. But the financial lives result in excessive depreciation rates, which produce excessive depreciation expense. If an excessive depreciation rate is applied to the plant balance, it results in excessive depreciation expense. Since depreciation expense flows dollar-for-dollar into the TELRIC price, excessive depreciation expense results in an excessive price.

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[5] Lindheimer v. Illinois Bell Telephone Company, 292 U.S. 151, 168-170 (1934) (emphasis added; footnote deleted)

IV. FCC REGULATED PROJECTION LIVES REMAIN APPROPRIATE FOR TELRIC CALCULATIONS

The Commission states in the TELRIC NPRM that, "the issue of asset lives is one where we believe more guidance from the Commission would be helpful to state commissions….and therefore the NPRM provides an opportunity for parties to present evidence to support such guidance."[6]

A. The FCC Has Properly Concluded That Its Safe Harbor Lives Are Forward Looking Lives

The guidance the FCC should give is that states should use the FCC's "safe harbor" regulatory depreciation lives. The NPRM focuses on the tension and differences between two sets of lives: the Commission's "safe harbor" regulatory depreciation lives versus the LEC's financial reporting lives. The FCC's "safe harbor" lives are forward-looking economic projection lives, and are a much more accurate estimate of such lives than financial lives. The FCC's rules require that only forward-looking costs be used in setting interconnection prices.[7] This requires the use of economic depreciation rates,[8] which are based on the expected revenue-producing life of newly placed plant.[9] In telephone depreciation nomenclature, such plant lives are termed "projection lives" to differentiate them from "remaining lives" and "average service lives," which reflect past plant placements and are used to develop embedded

[6] NPRM ¶ 97.

[7] FCC Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98, First Report and Order, FCC 96-325, released August 8, 1996 ("First Report and Order"), Appendix B ("Rules"), §51.505 (a).

[8] Rules, §51.505 (b) (3).

[9] The NARUC Depreciation Practices Manual defines "Economic Life" as "The total revenue producing life of an asset." NARUC, p. page 318. It defines "Projection Life" as "The average life expectancy of new additions to plant." NARUC, p. 322.

plant depreciation rates. Because they are forward-looking, economic projection lives are therefore by definition appropriate for use in TELRIC studies.

The FCC's current "safe harbor" lives are precisely these forward-looking economic projection lives. The FCC has already noted that in 1980 it "departed from its previous practice of relying largely on historical experience to project equipment lives and began to rely on analysis of company plans, technological developments, and other future-oriented studies."[10] In 1995, the FCC reaffirmed its forward-looking orientation in connection with the simplification of its depreciation represcription practices. The FCC prescribed a range of projection lives (safe harbor lives) that could be selected by carriers for prescription on a streamlined basis. Because these lives were explicitly based on "company plans, technological developments, and other future-oriented studies," they already are economic projection lives.

The FCC stated that these ranges were based on "statistical studies of the most recently prescribed factors. These statistical studies required detailed analysis of each carrier's most recent retirement patterns, the carriers' plans, and the current technological developments and trends."[11] In 1999, the FCC completed a review of these ranges and updated them as appropriate.[12] The FCC stated:

> These ranges can be relied upon by federal and state regulatory commissions for determining the appropriate depreciation factors for use in establishing high cost support and interconnection and UNE prices.[13]

[10] FCC, 1998 Biennial Regulatory Review-Review of Depreciation Requirements for Incumbent Local Exchange Carriers, CC Docket 98-137, Report and Order, FCC 99-397, released December 30, 1999 ("1999 Update"), ¶ 5.

[11] In re Simplification of the Depreciation Prescription Process, CC Docket No. 92-296 (Prescription Simplification proceeding), Third Report and Order, FCC 95-181, released May 4, 1995, ¶ 11.

[12] 1999 Update, ¶ 14.

[13] Id. ¶ 34.

Indeed, the FCC further stated:

> In adopting a forward-looking mechanism for high-cost support, we found that depreciation expense calculations based on the Commission's prescribed projection lives and salvage factors represent the *best forward-looking estimates* of depreciation lives and net salvage percentages.[14]

B. The Safe Harbor Lives Remain Forward Looking

Despite these prior pronouncements and the indubitably forward-looking nature of the prescribed safe harbor depreciation lives, the FCC now seems to indicate in the NPRM that these lives may no longer be forward looking for either theoretical or empirical reasons. However, any reasonable interpretation of the evidence continues to support the forward-looking nature of the FCC's asset lives.

The NPRM poses several specific questions aimed at determining whether the Commission's safe harbor depreciation lives remain appropriate. Specifically, the Commission asks whether safe harbor lives reflect competition and technology assumptions under a forward-looking costing methodology.[15] As I explained above, for over twenty years the FCC has used estimates of future trends and ILEC plant retirement plans to help it determine the depreciation lives. The FCC stopped relying primarily on historical indicators in 1980. Given this philosophical and methodological shift in the determination of depreciation lives, the current "safe harbor" lives are forward-looking economic lives and have anticipated the effect of competitive and technological change for over two decades. My empirical analysis of current

[14] FCC, United States Telephone Association's Petition for Forbearance from Depreciation Regulation of Price Cap Local Exchange Carriers, ASD 98-91, Memorandum Opinion and Order, FCC 99-397, released December 30, 1999 ("USTA Order"), ¶ 61 (emphasis added).
[15] NPRM ¶ 101.

plant lives and trends, below, corroborates that the FCC lives continue to be forward-looking estimates of depreciation lives.

The TELRIC assumption of instantaneous entry does not alter the appropriateness of the FCC's forward-looking depreciation lives. Indeed, as explained above, those lives are by definition appropriate in a TELRIC study because they are based on the projected lives of new plant. TELRIC attempts to replicate markets in which prices are discplined by the threat of competitive entry. In such markets, newer, better technology would induce a revaluation of competitive assets. But that is also true in a non-competitive market, even though in both competitive and non-competitive markets the embedded technology might continue to be used. The life of the assets is determined by the rapidity of technological change, not by the degree of competition. In highly competitive markets with little technological change, for example, economic lives remain long. In uncompetitive markets with high degrees of technological change, economic lives are generally short (except where the technological change extends the lives of existing equipment). Thus, TELRIC assumptions do not change the projected economic lives for new plant.

The Commission asks whether the validity of FCC asset lives depends in part on whether the Commission retains a scorched node approach to network design or instead adopts its tentative conclusion that forward-looking costs should more closely account for real-world attributes of the routing and topography of an ILEC's network. The validity of FCC asset lives does not depend on its retention of a scorched node approach. It is my understanding that any good TELRIC study, whether using scorched node or not, will account for real world attributes of routing and topography. Altering the scorched node approach, therefore, would at most alter the way in which this is done. This should have no relationship to depreciation calculations.

In addition to the theoretical questions concerning the impact of TELRIC assumptions, the Commission further asks the empirical question of whether the FCC's safe harbor lives are still accurate, given the passage of time.[16] In 1999, the Commission updated the safe harbor lives and made one change. I am unaware of developments that would warrant additional changes. And surely if there had been such changes the ILECs would have brought them to the Commission's attention. The ILECs have always been free to file new depreciation studies to make a showing to the FCC that the current lives are outdated or otherwise inaccurate. That they have not even attempted to do so should serve as strong evidence that even the ILECs believe that these lives are not truly understated.

To the extent the FCC is nonetheless concerned that its safe harbor lives are "dated," then it should update them with current versions of the same types of studies upon which they are now based, which as discussed above would include both current and planned retirements, and information on trends in technology and equipment prices. The FCC should require all major carriers to file traditional depreciation studies, as specified in its most recent Depreciation Study Guide these studies would then be subject to rigorous review and challenge. While projections of depreciation lives inherently contain some imprecision, only such an approach results in an unbiased determination of the most reasonable projections. An unbiased determination of projected lives is far more reliable than one bought and paid for by the ILECs, such as the Technology Futures, Inc. (TFI) studies they typically use to support their financial lives is

[16] Id.

apparent from examining the empirical evidence which shows the FCC lives are generally much more accurate than the alternatives (although they are still conservatively short).

The NPRM asks how relevant, if at all, are an ILEC's depreciation reserves, the actual retirement experience of an ILEC, or its projected investment plans for the near future.[17] All of these are relevant and all of them warrant consideration in the setting of asset lives. As demonstrated below, consideration of each of these factors supports the continued use of the current regulatory depreciation lives.

C. Reserves

Recent trends in depreciation reserve levels in the industry and for the BOCs provide empirical evidence that the projection lives prescribed by the FCC have been forward-looking. As the FCC has recognized, "[t]he depreciation reserve is an extremely important indicator of the depreciation process because it is the accumulation of all past depreciation accruals net of plant retirements. As such, it represents the amount of a carrier's original investment that has already been returned to the carrier by its customers."[18]

The FCC's recognition of the reserve level as an indicator of the depreciation process can best be understood by examining a steady state example. A "steady state" is a condition in which plant additions are continuously equal to retirements. Thus, when plant balances have reached a steady state they do not change with normal plant activity.

Assume that we start with a stable environment in which the average age of plant is 10 years and the expected life of plant is 30 years. With a 30 year life and a steady state, 1/30 of the

[17] Id. ¶ 99.
[18] FCC, Report on Telephone Industry Depreciation, Tax and Capital/Expense Policy, Accounting and Audits Division, April 15, 1987 ("AAD Report"), at 5-6.

plant (3.3 percent) will be retired each year and an equal amount of new plant will have to be added to maintain the steady state. If depreciation lives have been set correctly at 30 years, the straight-line accrual rate will also be 1/30 (3.3 percent), as the net book value of the plant declines by 1/30 each year. In this example, the reserve level is stable at 33 percent of plant in service (10 years/30 years).[19] The reserves are the amount of plant that has already been depreciated (and, in a regulated industry, paid for by customers). In this example, ten years of plant have been depreciated on average, which is 1/3 of the value of the plant in service.

As we vary these factors, we can see the effect on the reserve level. If the reserve levels decrease over time, it is generally a sign that projected depreciation lives have been set too short unless plant additions have increased. For example:

- The reserve level could go down without any implication for depreciation lives if the add rate were to increase above 3.3 percent. In that case, reserves would go down not because plant had been depreciated too rapidly but because the average age of plant would similarly represent a lower percentage of its expected life.
- In contrast, if the reserve level went down, because the retirement rate increased above 3.3 percent, this would be a cause for concern, since it would indicate that the

[19] Depreciation Reserve will stabilize at 33 percent assuming a triangular (straight-line) mortality curve. *See* Notes for Engineering Economics Courses, American Telephone and Telegraph Company, Engineering Department, 1966, at 121.

expected life of plant is shorter than previously expected. If the expected life is shorter, the average age of plant would represent a higher percent of its expected life, and the reserve should be higher, not lower, than 33 percent.

- Similarly, if the reserve level went down because the accrual rate were increased above the actual accrual rate of 3.3 percent, this would raise a concern that depreciation was too fast. The reserve level would go up because plant would be depreciated more quickly. This would not be appropriate absent a reduction in the expected life of the plant, since it would indicate that the average age of plant is more than 10 years without any change in the actual average age.

In summary, a declining reserve percentage would be a reason for concern that depreciation is too fast, absent indications that it is merely the result of growth in plant. On the other hand, a rising reserve percent is generally a positive sign that the depreciation process is working well. Indeed, absent indications that the expected life of plant is decreasing, it might be a sign that accrual rates are too high.

Attachment 1 to this declaration displays reserve levels and other plant rates since 1946 for all LECs providing full financial reports to the FCC. As shown on Page 1 of Attachment 1, reserve percents decreased steadily following World War II due to industry growth. These declines continued through the 1970's due in part to accrual rates that were too low.[20]

As shown on Page 1 of Attachment 1, however, the FCC's change to forward-looking depreciation practices in the early 1980s resulted in a dramatic rise in reserve levels after 1980. The composite reserve level rose from 18.7 percent in 1980 to an historic high of 53.8 percent in 2001. Attachment 2 confirms that these national trends apply also to the BOCs as a group. The depreciation reserve level for all the BOCs has risen from 38.9 percent in 1992 to 56.9 percent in 2002. This track record indicates that the depreciation process is, at a minimum, resulting in adequate depreciation accruals, and that the FCC's projection life estimates have been forward-looking and unbiased. Indeed, the FCC projection lives may have been too short. This is because the FCC's lives have anticipated a vast acceleration in retirements relative to actual historical experience, but to date at least, these accelerated retirements have not begun.

Confirmation of the forward-looking nature of current FCC prescription rates can also be gained by comparing the 2001 accrual rate of 6.8 percent to the 2001 retirement rate of 2.7 percent.[21] The prescription of an accrual rate much higher than the current retirement rate indicates an expectation that the retirement rate will be much higher in the future. If the FCC were prescribing depreciation rates based upon historical indicators, it would be prescribing depreciation rates in the range of 3 to 5 percent. But, again, depreciation lives have so far been longer than the FCC anticipated because retirement has not increased above historic levels.

[20] AAD Report at 7.
[21] See Attachment 1, page 4, Column l versus Column k.

D. Actual Retirement Experience

In addition to reserve levels, which are a point-in-time indicator of accruals versus actual retirement experience, it is possible to more directly assess the LECs' actual retirement experience. Such direct assessments also demonstrate that the FCC lives are, if anything, too short.

First, it must be recognized that actual retirement experience is a particularly good way of determining the accuracy of the FCC lives, as the LECs' actual investment and retirement experience reflects their direct response to equipment price, efficiency, technological and competitive changes. As shown in Attachment 1, retirement rates for all reporting ILECs were only 2.7 percent in 2001. Attachment 2 demonstrates that the BOC retirement rates were only 3.7 percent in 2002. These are actually lower than would be expected based on the FCC lives from which one would expect retirement rates of 6.8 percent (assuming a steady state, based on the FCC's composite accrual rate of 6.8%). The fact that LECs are retiring less plant that would be expected based on FCC lives shows that the plant is lasting longer than the FCC anticipated. Thus, the FCC lives are certainly not too long; if anything, they are too short.

Further empirical evidence that the FCC's prescribed lives are not too long can be gained by comparing them to the current life indications for the BOCs' major accounts. Attachment 3 makes this comparison based upon a series of Geometric Mean Turnover ("GMT") studies, which are based on many more data points than LEC retirement reports discussed above, for which two years of data are provided. Like the retirement reports, the GMT studies also show that the FCC lives are generally shorter than the BOCs' actual retirement experience.

A GMT study is one of the "turnover" methods of life analysis, which in turn study plant additions and retirements, regardless of their age, in relation to plant balances. The GMT method is an alternative to the historical mortality studies that the BOCs used to file at the FCC, but, unlike those studies, is based on publicly available data. It is a widely accepted method that is set forth in the NARUC manual. If the BOCs were to submit new studies using their historical mortality methodology, they would almost certainly yield similar – and perhaps longer – results than those from the GMT method.

The GMT method, which provides average life indications, makes certain simplifying assumptions which I will explain for sake of completeness. These are not controversial. The GMT method assumes the account balance is growing uniformly and the dispersion (i.e., pattern) of retirements is the same for each vintage. Turnover analysis is based upon the general theory that the time it takes the plant to "turnover" (i.e., the time it takes retirements to exhaust a previous plant balance) is a measure of its service life. The GMT method is a simplified form of the Asymptotic method.[22]

The Asymptotic method proposes that a life estimate may be obtained using the limiting values, or asymptotes, of the additions and retirement ratios. This method assumes that the account has stabilized and the balances are either constant or changing at a constant rate.[23] The life estimate is the reciprocal of the geometric mean of the limiting value of the additions and retirements ratios, as show below:

[22] Both the Asymptotic and GMT methods were developed by Joseph Jeming, NARUC Manual, pages 89-91.
[23] Id. p. 89. (footnote deleted.)

$$\text{Life estimate} = \frac{1}{\sqrt{ar}}$$

where "a" is the limiting value of the additions ratios (additions ratios = additions/plant balances),

where "r" is the limiting plant value of the retirements ratios (retirements/plant balances).

And the values for a and r are estimated by determining additions and retirements ratios each year and fitting each to a curve.[24]

The GMT method was developed as a simplification of the Asymptotic method to be applied when the best fit to the ratios is a straight line. The method assumes the growth rate and average life have remained fairly constant for at least one life cycle (roughly twice the average life). The life estimate is the reciprocal of the geometric mean of the additions and retirements ratios over a period of years:

$$\text{Life estimate} = \frac{1}{\sqrt{ar}}$$

where a = the average additions ratio
where r = the average retirements ratio

If the plant is static (i.e., zero growth, or steady state), "a" is equal to "r" and the life indication is the reciprocal of either value.

The presence of erratic annual ratios may force the consideration of cumulative data. This modification is also used when r > a. An alternative to using cumulative data over the entire history is to accumulate data over short intervals, e.g., at least ten separate intervals of

[24] Id. pages 89-90.

three to five years each. If the data are highly irregular, this modification may succeed in indicating trends, but not a reliable life indication.[25]

Attachment 3 calculates the GMT life indications for a 1990 to 2002 base period and ten consecutive bands, of three years each, within the base period. Both the base period indications and the banded indications are plotted on "worm charts" to highlight any trends.[26] The FCC's prescribed ranges are shown on each account's worm chart.

The following table compares the FCC's prescribed range to the latest GMT life indications for the major accounts of the BOCs:

	FCC RANGE		LATEST
	Low	**High**	**GMT LIFE**
All Accounts	N/A	N/A	18
Digital Switching	12	18	17
Circuit	11	13	15
Aerial Cable	20	26	32
Underground Cable	25	30	48
Buried Cable	20	25	29

Most of the current life indications exceed the high point of the FCC's range.

Attachments 4 through 7 provide the same analysis for the BOCs on an individual basis. These studies suggest lives equal to or longer than the FCC lives. These fairly straightforward analyses, using actual addition and retirement data, thus demonstrate that the current FCC lives are if anything conservatively short. To date, the FCC's projections have been shorter than actual lives have turned out to be.

[25] Id. pages 90-91.
[26] Worm Chart is a term of art for a table plotting consecutive life indications.

V. FINANCIAL BOOK LIVES REMAIN INAPPROPRIATE FOR TELRIC CALCULATIONS

It has been my experience that the LECs, whether in TELRIC proceedings or base rate revenue requirement proceedings, point to the lives they use for financial reporting as the appropriate lives for regulatory purposes because they are "GAAP lives." The NPRM raises many questions concerning GAAP lives, but before attempting to answer those questions, I will provide my opinion and understanding of the nature of GAAP lives.

GAAP stands for Generally Accepted Accounting Principles. GAAP lives are the lives estimated by companies' management, subject to assessment by auditors, for use in financial statements. The primary basis of GAAP lives is the opinion of management. Although public accounting firms audit companies' annual reports, they merely provide their opinion that management's use of those life estimates present fairly, in all material respects, the annual depreciation expense in conformance with GAAP – in other words that the depreciation expense is a systematic and rational allocation of expenses over the useful life of company assets. The auditors specifically do not say that those lives are correct or accurate, because they are aware that they are merely estimates.

The concept of a GAAP life therefore is a misnomer.[27] Any reasonably well-supported lives could be GAAP lives. If an ILEC's management selected the FCC lives to use for estimates, for example, these lives themselves would be approved by auditors as having a reasonable basis and would then themselves be "GAAP lives." But none of the ILECs have

[27] Certified Public Accountants would no more attest to the accuracy, precision or correctness of management's life estimates than they would attest to any individual number in the financial statements. It is disingenuous to refer to the lives used by LECs to calculate their financial book depreciation expense as GAAP lives, because to do so suggests some level of attestation on behalf of the independent auditors which does not exist.

chosen the FCC lives to present to auditors. Instead, they have chosen much shorter lives, generally lives derived from a series of studies, developed by Technology Futures, Inc. ("TFI") and financed by the industry.

In a regulated industry, the ILECs have the incentive to advocate for short lives because they can then use these lives as a justification for higher rates. The auditors then approve these lives in part because they have what appears to be a reasonable basis in a study, and in part based on the conservatism principle, which holds "that when alternative expense amounts are acceptable, the alternative having the least favorable effect on net income should be used."[28]

But while conservatism helps protect investors by "ensur[ing] that a company does not present a misleading picture of its financial condition and operating results by, for example, overstating its asset values or overstating its earnings," it "does not offer adequate protection for ratepayers," because it may lead to the choice of shorter lives even when longer lives would be more accurate. *Id.*[29] Indeed, there have been repeated demonstrations that the TFI lives are far too short. For example, the original TFI forecasts predicted that there would be no more copper in the ground by 2010 – an estimate that has been revised upward in every subsequent TFI study. As a result, the FCC has found that TFI lives have not been shown to be accurate.[30]

The problem would only grow worse if the FCC were to decide to rely on GAAP lives for the purpose of setting TELRIC rates. At that point, ILEC management would have a significant additional incentive to choose very short lives. And their would be nothing in GAAP

[28] *Prescription Simplification, Report and Order*, FCC 93-452, released Oct. 20, 1993, at 46.

[29] The Commission asks whether compliance with GAAP results in a systematic bias. The answer is "yes" with respect to the LEC's financial reporting lives. Given two estimates, GAAP would generally support the shorter estimate as a result of the "conservatism" principle. If auditors are presented with a choice between the FCC's lives and the TFI lives, the "conservatism" principle will support the use of the TFI lives because they are shorter.

[30] *1998 Biennial Regulatory Review*, CC Docket 98-137, Report and Order, FCC 99-397 released December 30, 1999 ¶ 16.

that would preclude them from doing so. Because of the conservatism principle and because the very uncertainty of estimates of depreciation lives leaves management a wide range of rates from which they could "reasonably" choose, the auditors would likely approve such super-short rates.

For just these reasons, the Commission has on numerous occasions rejected the use of asset lives reflected in financial reporting.[31] It did, however, permit incumbent LECs to seek waivers that would allow them to use financial book lives,[32] but no LEC has yet sought a waiver under these rules, perhaps realizing that they could not show that GAAP lives would be more accurate.[33]

The FCC has been reluctant to rely on financial reporting lives because GAAP might permit companies to adopt depreciation methods that result in excessive depreciation.[34] The Commission now asks in the NPRM whether its reluctance is warranted in the context of UNE ratemaking.[35] The Commission's reluctance remains warranted for the very reasons that it has rejected the LEC's financial book lives in the past. They have consistently been used to attempt to support shorter lives, and thus higher telephone prices. The shorter lives are demonstrably wrong and understated, and the studies on which they have relied to date have been rejected on numerous occasions.

The NPRM asks whether pressure from financial markets will ensure that asset lives are estimated accurately.[36] The financial markets are not in the business of studying asset lives.

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[31] NPRM ¶ 96. The FCC has consistently rejected financial book lives. *See*, for example, Prescription Simplification, Report and Order, FCC 93-452, released October 20, 1993, ¶ 46 1998 Biennial Regulatory Review, CC Docket No. 98-137 (rel. Dec. 30, 1999) at ¶ 48, and Universal Service Inputs Order, at 429.
[32] Id.
[33] Id.
[34] Id. ¶ 98.
[35] Id.
[36] Id.

Furthermore, current financial markets tend to rely on cash flow ("EBITDA"), and depreciation is non-cash. Thus, neither GAAP nor financial markets should have any significant influence on the lives to be used in TELRIC studies.

VI. THE COMMISSION SHOULD ADDRESS NET SALVAGE

As discussed above, the FCC established a "safe harbor" range of lives. At the same time, the Commission established safe harbor net salvage values. Many of these are negative, meaning the cost of removing the plant at the end of its economic life is more than the plant can then be sold for. Under the Commission's rules, the cost of removal (above and beyond the salvage value) can be depreciated in addition to the value of the plant itself. This is so even if the ILEC would not in fact remove the plant because the salvage value is negative and there is no independent reason to remove the plant. And in December 20, 2002, the Commission determined that this would remain so even though GAAP rules (Financial Accounting Standards No. 143) now prohibit including negative salvage value in depreciation when there is no legal obligation to remove the assets. [37]

The NPRM suggests the possibility of moving towards GAAP lives, or shortening lives in other ways, but it does not discuss revision of the rules regarding net salvage values or of the safe harbors for net salvage values. This is a critical omission. If the FCC were to move towards use of GAAP lives, there is no reason not to also move towards GAAP principles with respect to salvage value. Indeed, unlike the lives the ILECs have adopted under GAAP, which are demonstrably inaccurate, the GAAP principles with respect to salvage value make eminent

[37] The Commission stated that it's "rules account for the cost of asset retirements as part of the net salvage estimates included in the calculation of depreciation rates …", and "the Commission's accounting rules and prescribed depreciation rates include the cost of plant removal in depreciation whether or not an actual obligation exists." FCC Docket WCB/Pricing 02-35, December 20, 2002.

sense. The ILECs should not be able to recover for removing plant that they do not remove – or that, if they do remove, costs far less to remove than the FCC safe harbors suggest.

The problems with the existing salvage rules have significant consequences. Indeed, even assuming that some salvage value could be recovered, the effect of net salvage ratios that are too negative can be significant. If, for example, a negative 50 percent ratio were assumed but a 5 percent ratio were correct (assuming it were appropriate to account for negative net salvage at all), the effect would be substantial, The next table shows the impact on depreciation rates of increasing the cost of removal ratio:

Table 3

Impact of Increasing Cost of Removal Ratio From -5% to -50%

-5% ratio = 100%-(-5%)/10 = 10.5 %

-50% ratio = 100%-(-50%)/10 = 15.0 %

Increasing a cost of removal ratio from -5% to -50% increases the depreciation rate from 10.5% to 15.0%. If the -50% cost of removal ratio is not supportable, the resulting 15.0% depreciation rate is excessive. The combination of understated lives and overstated cost of removal ratios compounds the excessive depreciation rate problem.

Some recent SEC filings from each of the RBOCs (their most recent SEC Form 10-Qs) make clear that the use of negative salvage values has inflated their depreciation costs by *billions* of dollars.[38] These companies are recording significant gains and reducing depreciation rates as

[38] Qwest Communications has not yet filed their 2002 10-K or 10-Q reports for this year. The information for Qwest was taken from the 2002 Qwest Communications International Inc. 10-K report.

a result of their prior inclusion of excessive cost of removal allowances in depreciation rates, when in fact they often were not removing the plant at all.

> **<u>SBC Communications Inc.</u>**
>
> On January 1, 2003, we adopted Statement of Financial Accounting Standards No. 143, "Accounting for Asset Retirement Obligations" (FAS 143). FAS 143 sets forth how companies must account for the costs of removal of long-lived assets when those assets are no longer used in a company's business, but only if a company is legally required to remove such assets. FAS 143 requires that companies record the fair value of the costs of removal in the period in which the obligations are incurred and capitalize that amount as part of the book value of the long-lived asset. To determine whether we have a legal obligation to remove our long-lived assets, we reviewed state and federal law and regulatory decisions applicable to our subsidiaries, primarily our wireline subsidiaries, which have long-lived assets. Based on this review, we concluded that we are not legally required to remove any of our long-lived assets, except in a few minor instances.
>
> However, in November 2002, we were informed that the SEC staff concluded that certain provisions of FAS 143 require that we exclude costs of removal from depreciation rates and accumulated depreciation balances in certain circumstances upon adoption, even where no legal removal obligations exist. In our case, this means that for plant accounts where our estimated costs of removal exceed the estimated salvage value, we are prohibited from accruing removal costs in those depreciation rates and accumulated depreciation balances in excess of the salvage value. For our other long-lived assets, where our estimated costs of removal are less than the estimated salvage value, we will continue to accrue the costs of removal in those depreciation rates and accumulated depreciation balances.
>
> *Therefore, in connection with the adoption of FAS 143 on January 1, 2003, we reversed all existing accrued costs of removal for those plant accounts where our estimated costs of removal exceeded the estimated salvage value. The noncash gain resulting from this reversal was $3,684, net of deferred taxes of $2,249 [$5.9 billion pre-tax], recorded as a cumulative effect of accounting change*

on the Consolidated Statement of Income as of January 1, 2003.[39]

BellSouth Corporation

Effective January 1, 2003, we adopted SFAS No. 143, "Accounting for Asset Retirement Obligations" (SFAS No. 143). This statement provides the accounting for the cost of legal obligations associated with the retirement of long-lived assets. SFAS No. 143 requires that companies recognize the fair value of a liability for asset retirement obligations in the period in which the obligations are incurred and capitalize that amount as part of the book value of the long-lived asset. SFAS No. 143 also precludes companies from accruing removal costs that exceed gross salvage in their depreciation rates and accumulated depreciation balances if there is no legal obligation to remove the long-lived assets. For our outside plant accounts, such as telephone poles and cable, estimated cost of removal does exceed gross salvage.

Although we have no legal obligation to remove assets, we have historically included in our group depreciation rates estimated net removal costs associated with these outside plant assets in which estimated cost of removal exceeds gross salvage. These costs were reflected in the calculation of depreciation expense, which results in greater periodic depreciation expense and the recognition in accumulated depreciation of future removal costs for existing assets. When the assets are actually retired and removal costs are expended, the net removal costs are recorded as a reduction to accumulated depreciation.

In connection with the adoption of this standard, we were required to remove existing accrued net costs of removal in excess of the related estimated salvage from our accumulated depreciation for those accounts. *The adjustment is reflected in the first quarter income statement as a cumulative effect of accounting change adjustment and on the balance sheet as an increase to net plant and equipment of $1,334 [pre-tax gain] and an increase to*

[39] SBC Communications Inc., September 30, 2003 Form 10-Q report, Notes to Consolidated Financial Statements (Unaudited), 1. Summary of Significant Accounting Policies, Depreciation Accounting (emphasis added).

> *deferred income taxes of $518. The cumulative effect of the change increased net income by $816 or $0.44 per share for the nine months ended September 30, 2003.*[40]

> **<u>Qwest Communications International, Inc.</u>**
>
> On January 1, 2003, we adopted SFAS No. 143, "Accounting for Asset Retirement Obligations" ("SFAS No. 143"). This statement addresses financial accounting and reporting for obligations associated with the retirement of tangible long-lived assets and the associated asset retirement costs, generally referred to as asset retirement obligations. SFAS No. 143 requires entities to record the fair value of a legal liability for an asset retirement obligation required to be settled under law or written or oral contract. If a reasonable estimate of fair value can be made, the fair value of the liability shall be recognized in the period it is incurred, or if not, in the period a reasonable estimate of fair value can be made. This cost is initially capitalized and then amortized over the estimated remaining useful life of the asset. We have determined that we have legal asset retirement obligations associated with the removal of a limited group of long-lived assets and recorded a cumulative effect of a change in accounting principle charge upon adoption of SFAS No. 143 of $28 million (liability of $43 million net of an asset of $15 million) in 2003.
>
> Prior to the adoption of SFAS No. 143, we have included in our group depreciation rates estimated net removal costs (removal costs less salvage). These costs have historically been reflected in the calculation of depreciation expense and therefore recognized in accumulated depreciation. When the assets were actually retired and removal costs were expended, the net removal costs were recorded as a reduction to accumulated depreciation. While SFAS No. 143 requires the recognition of a liability for asset retirement obligations that are legally binding, it precludes the recognition of a liability for asset retirement obligations that are not legally binding. Therefore, upon adoption of SFAS No. 143, we reversed the net removal costs within accumulated depreciation for

[40] BellSouth Corporation, September 30, 2003 Form 10-Q report, Notes to Consolidated Financial Statements (Unaudited), Note D – Changes in Accounting Principle, Asset Retirement Obligations (emphasis added).

those fixed assets where the removal costs exceeded the estimated salvage value and we did not have a legal removal obligation. *This resulted in income from the cumulative effect of a change in accounting principle of $365 million [post-tax] in 2003.*[41]

Verizon Communications Inc.

Effective January 1, 2003, we adopted SFAS No. 143, "Accounting for Asset Retirement Obligations." This statement provides the accounting for the cost of legal obligations associated with the retirement of long-lived assets. SFAS No. 143 requires that companies recognize the fair value of a liability for asset retirement obligations in the period in which the obligations are incurred and capitalize that amount as part of the book value of the long-lived asset. We have determined that Verizon does not have a material legal obligation to remove long-lived assets as described by this statement. However, prior to the adoption of SFAS No. 143, we included estimated removal costs in our group depreciation models. These costs have increased depreciation expense and accumulated depreciation for future removal costs for existing assets. These removal costs were recorded as a reduction to accumulated depreciation when the assets were retired and removal costs were incurred.

For some assets, such as telephone poles, the removal costs exceeded salvage value. Under the provisions of SFAS No. 143, we are required to exclude costs of removal from our depreciation rates for assets for which the removal costs exceed salvage. Accordingly, in connection with the initial adoption of this standard on January 1, 2003, we have reversed accrued costs of removal in excess of salvage from our accumulated depreciation accounts for these assets. *The adjustment was recorded as a cumulative effect of an accounting change, resulting in the recognition of a gain of approximately $3,499 million ($2,150 million after-tax).* Effective January 1, 2003, we began expensing costs of removal in excess of salvage for these assets as incurred. The impact of this change in accounting will result in a decrease in

[41] Qwest Communications International Inc., December 31, 2002 Form 10-K report, pages 69–70, Management's Discussion and Analysis of Financial Condition and Results of Operations, New Accounting Standards (emphasis added).

depreciation expense and an increase in cost of services and sales.[42]

Sprint Corporation

Sprint adopted Statement of Financial Accounting Standard (SFAS) No. 143, Accounting for Asset Retirement Obligations, on January 1, 2003. This standard provides accounting guidance for legal obligations associated with the retirement of long-lived assets that result from the acquisition, construction or development and (or) normal operation of that asset. According to the standard, the fair value of an asset retirement obligation (ARO liability) should be recognized in the period in which (1) a legal obligation to retire a long-lived asset exists and (2) the fair value of the obligation based on retirement cost and settlement date is reasonably estimable. Upon initial recognition of the ARO liability, the related asset retirement cost should be capitalized by increasing the carrying amount of the related long-lived asset.

Sprint's network is primarily located on leased property. In the FON Group, a majority of the leased property has no requirement for remediation at retirement. The remainder of the FON Group's leased property and predominately all of the PCS Group's leased property do have remediation requirements. Sprint expects to maintain the property as a necessary component of infrastructure required to maintain FCC licensing. The history and patterns of Sprint's use, as well as that of our industry, support a low probability associated with lessor enforcement of their remediation rights. Based on these trends and our limited experience in performing remediation of sites, Sprint estimates the liability associated with the ultimate disposition of those requirements to be immaterial.

Adoption of SFAS No. 143 affected the cost of removal historically recorded by the FON Group's local division. Consistent with regulatory requirements and industry practice, the local division historically accrued

[42] Verizon Communications Inc., September 30, 2002 Form 10-Q report, page 5, Notes to Condensed Consolidated Financial Statements, 2. Accounting Changes, Asset Retirement Obligations (emphasis added).

> costs of removal in its depreciation reserves. These costs of removal do not meet the SFAS No. 143 definition of an ARO liability. Upon adoption of SFAS No. 143, the FON Group recorded a reduction in its historical depreciation reserves of approximately $420 million to remove the accumulated excess cost of removal, resulting in a cumulative effect of change in accounting principle credit, net of tax, in the Consolidated Statements of Operations of $258 million. *The annual impact of this accounting change on income from continuing operations is an expected decrease to the FON Group's 2003 depreciation expense of approximately $40 million and an increase to 2003 expenses incurred for removal costs of approximately $20 million recognized ratably over the year.*[43]

These companies have been collecting for future cost of removal, but now acknowledge that they do not have any obligation to spend that money. Therefore, they are recording gains that collectively approximate *$10 billion* resulting from prior excess depreciation allowed in service rates and TELRIC prices. Simultaneously, they are reducing their financial book depreciation rates. While the ILECs might say they will then record removal costs as operating expenses, this presumes that they remove the plant at all. Moreover, it can readily be demonstrated that the operating expenses they record will be far less than the removal costs recorded as part of depreciation.

This phenomenon suggests that any wide-scale revamping of the FCC's depreciation rules and practices, such as contemplated in the NPRM, must include an examination of the cost of removal issue. As written, the NPRM has failed to address this very important subject area.

[43] Sprint Corporation, September 30, 2002 Form 10-Q report, Condensed Notes to Consolidated Financial Statements, 3. Asset Retirement Obligations (emphasis added).

VII. THE FCC SHOULD RETAIN A STRAIGHT-LINE DEPRECIATION METHOD

The NPRM focuses on the possible applicability of accelerated and decelerated depreciation methods as a means to track equipment price changes. "Accelerated depreciation," "decelerated depreciation," and "straight-line depreciation" are types of depreciation methods. Straight-line depreciation will evenly allocate or charge 50 percent at the midway point of the life used to calculate depreciation. Generally, accelerated depreciation will allocate or charge more than 50 percent of the cost of the asset to depreciation in a declining manner by the midway point of the life, and the opposite is true for decelerated depreciation.

To date, there has been no significant debate concerning the appropriate depreciation method for telecommunications plant depreciation: the straight-line method is used for both regulatory purposes and for financial book purposes perhaps because both regulators and the companies have understood that prices for most telecommunications plant equipment do not rapidly decline The straight-line method is, and always has been, used for regulatory purposes.[44] The straight-line method is also used for financial book purposes, as the following excerpts from the ILEC 10-Ks show:

> **<u>SBC Communications Inc.</u>**
> Property, plant and equipment is stated at cost. ... Property, plant and equipment is depreciated using straight-line methods over their estimated economics lives.[45]
>
> **<u>Qwest Communications International Inc.</u>**
> Property, plant and equipment is carried at cost and is depreciated using the straight-line group method.[46]

[44] It is my understanding that some TELRIC models have an ELG feature. This is usually associated with the dispersion pattern aspect of depreciation, which the NPRM does not mention. If ELG is used on a single-asset basis, the effect could be accelerated depending on the shape of the dispersion pattern.
[45] SBC Communications Inc., 2002 10-K Report, Notes to Consolidated Financial Statements, Note 1. Summary of Significant Accounting Policies, Property, Plant and Equipment.

> **BellSouth Corporation**
> The investment in property, plant and equipment is stated at original cost. ... For plant dedicated to providing regulated telecommunication services, depreciation is based on the group remaining life method of depreciation and straight-line rates determined on the basis of equal life groups of certain categories of telephone plant acquired in a given year.[47]
>
> **Verizon Communications Inc.**
> We record plant, property and equipment at cost. Our telephone operations' depreciation expense is principally based on the composite group remaining life method and straight-line composite rates.[48]
>
> **Sprint Corporation**
> Property, plant and equipment is recorded at cost. ... The cost of property, plant and equipment is generally depreciation on a straight-line basis over estimated economic useful lives.[49]

There is thus substantial precedent for the use of the straight-line method. There should therefore be a good reason before there is a change from this method. This is especially so if the Commission were to move towards greater reliance on the ILECs' financial books. If it does so, there would be even less reason to depart from the straight-line method used in those books.

Indeed, there is no strong justification to abandon the straight-line method in any event. While in theory use of accelerated depreciation could be appropriate where equipment prices are

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[46] Qwest Communications International Inc., 2002 10-K Report, page 91, Notes to Consolidated Financial Statements, Note 2. Summary of Significant Accounting Policies, Property, Plant and Equipment.
[47] BellSouth Corporation, 2002 10-K Report, page 56, Notes to Consolidated Financial Statements, Note A – Accounting Policies, Property, Plant and Equipment.
[48] Verizon Communications Inc., 2002 10-K Report, Notes to Consolidated Financial Statements, Note 1 – Description of Business and Summary of Significant Accounting Policies, Plant and Depreciation.
[49] Sprint Corporation, 2002 10-K Report, page F-20, Notes to Consolidated Financial Statements, 1. Summary of Significant Accounting Policies, Property, Plant and Equipment.

to decline,[50] decelerated depreciation would then be required where equipment prices increase. Indeed, the Commission has recognized that prices may go down or up. But if both accelerated and decelerated depreciation were used to account for such price changes, the result might not be very different from the straight-line method, while increasing complexity and the opportunity for manipulation. The evidence suggests in fact that more decelerated than accelerated depreciation would result if an accurate effort were made to account for equipment price changes.

Appendix B of the Virginia Arbitration Order indicates this in the following current cost to book ratios, which show that the cost of most telecommunications plant is higher than the cost on the books presumably because the plant has increased in value from the time it was purchased.

Decreasing Cost	**1/1/02 BOC Investment ($M)**	**1999 C/B Ratio**
Digital Switching	$60,377	.9012
Circuit	59,616	.9602
Aerial Fiber	2,495	.8777
UG Fiber	21,336	.8310
Buried Fiber	4,143	.9676
	$147,967.00	

Increasing Cost	**1/1/02 BOC Investment ($M)**	**1999 C/B Ratio**
Network Support	$6,057	1.0213
General Support	33,158	1.4917
Poles	5,842	2.3879
Aerial Metallic	27,520	1.6178

[50] The Commission states, "with respect to the rate of depreciation, however, we clarified that a carrier may accelerate recovery of the initial capital outlay for an asset over its life to reflect any anticipated decline in its value."

UG Metallic	21,336	1.6412
Buried Metallic	49,557	1.3680
Conduit	18,428	1.8049
	$161,898	

If depreciation rates were "front-loaded" to fine-tune for expected cost decreases in the future, they would also have to be "back-loaded" to fine-tune for expected cost increases. Based on the ratios shown above, switching, circuit and fiber depreciation rates may increase, but the major outside account depreciation rates would decrease even more than the offsetting increases. Therefore, the Commission should be aware of the possible unintended consequences of making changes to depreciation methods to track equipment price changes. Given the offsetting increases and decreases in price and the difficulty in projecting these, there appears to be no strong reason to depart from the simpler and traditional straight-line method.

VIII. EARLY RETIREMENTS

Finally, I respond to the NPRM's question of "under what circumstances would a carrier retire an asset before the end of its useful life."[51] The NARUC Public Utility Depreciation Practices Manual explains that "physical property is subject to forces of retirement [mortality]. These forces include those related to the property's physical condition (e.g., wear and tear, accident), functional obsolescence or inadequacy, or termination of the need or enterprise."[52] Obviously, accidents or poor quality equipment could be causes of early retirements.

The Commission asks whether, if the use of shorter asset lives increases the amount of cost recovery, is this an appropriate method of reflecting anticipated technological improvements

[51] NPRM ¶ 108.
[52] NARUC Manual, page 67.

that would lower costs?[53] I do not believe so, necessarily. The telephone industry has undergone many technological changes throughout its history. These changes are reflected in actuarial life studies and my GMT studies as both increases and decreases. Furthermore, it is well accepted that certain existing technologies will serve to lengthen the lives of existing embedded technology.

The above question in the NPRM seems to assume that "technological improvements" necessarily result in the wide-scale and coterminous replacement of all current technology. The fact may be that such technological improvements reduce the operating costs of existing technology, and therefore may actually extend lives. DSL, for example, is expected to extend the life of copper plant.

More generally, the Commission asks whether a reduction in asset lives might be used as a proxy for changing investment costs.[54] The Commission is considering shorter asset lives to track anticipated changes in equipment prices in the telecommunications market, which would lead to higher depreciation expense and TELRIC prices.

As a general matter, I believe such changes would lead to a less accurate assessment of depreciation expense and an unwarranted increase in TELRIC prices. To the extent that the Commission has independent reasons to increase TELRIC rates, it should not do so by projecting shorter asset lives. I am opposed to artificial manipulations of depreciation lives to achieve pricing goals. As I have explained, I recommend economic projection lives for new plant, i.e., the average revenue producing life of a new plant addition. Pricing goals might be accomplished through alternative depreciation methods, but the revenue-producing life should not be changed

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[53] Id.
[54] NPRM ¶ 108.

merely to achieve a desired answer. I therefore support the Commission's recognition in the TELRIC NPRM that, "If UNE prices can be adjusted directly to reflect anticipated equipment price changes, there may be no need to develop complicated mechanisms for reflecting such changes in depreciation expense."[55] Indeed, artificial and arbitrary adjustments to depreciation parameters, methods, procedures and techniques is precisely the wrong way to proceed, because they lead to artificial and arbitrary cost estimates in the TELRIC model.

Finally, the Commission asks whether there is a risk of over-recovery if asset lives are shortened.[56] The answer to this is "yes." If asset lives are shortened to account for early retirements that do not materialize, for example, then "over-recovery" or excessive depreciation will be built into the price. Since TELRIC prices are forward-looking, there is no make-whole provision for a TELRIC customer. On the other hand, as shown in my discussion of the LEC industry's reserve adjustments associated with SFAS No. 143, the ILECs are now recording gains as a result of prior excess collections from customers. Indeed, as also shown above, the ILEC reserves are increasing precisely because the FCC projected more retirements than have happened. Given this experience, there is no basis for assuming even more early retirements.

IX. CONCLUSION

In summary, the FCC's safe harbor lives are unbiased economic projection lives and appropriate for use in TELRIC studies. Financial book lives remain inappropriate for TELRIC. Finally, in my opinion, accelerated depreciation is not necessary. Straight-line depreciation is used almost universally.

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[55] Id.¶ 104.
[56] Id.

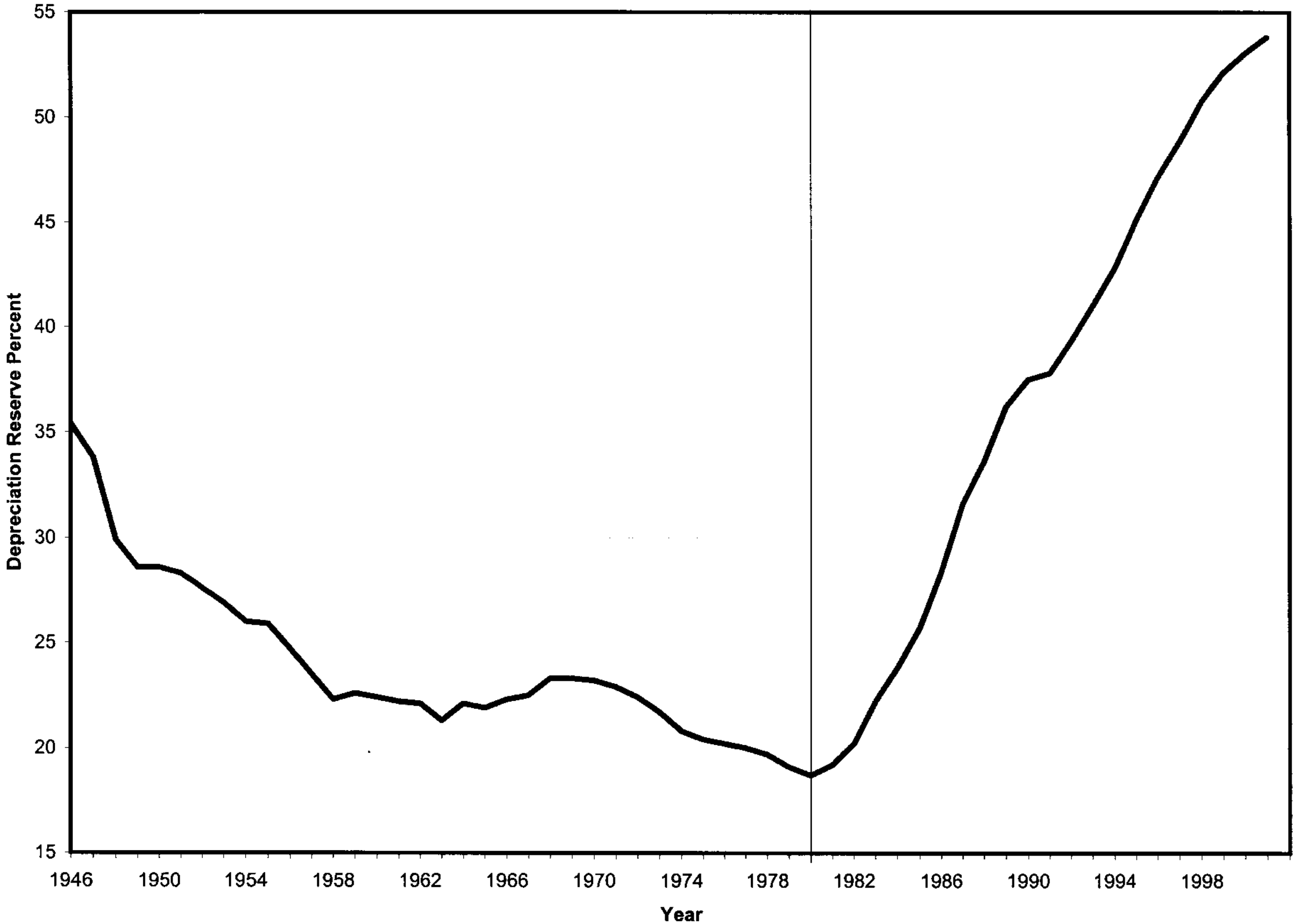
Declaration

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 16, 2003.

Michael J. Majoros, Jr.

Depreciation Reserve Percent
All Reporting LECs



All Reporting LECs' Plant Related Rates

(Dollars in Millions)

	Telecommunications Plant in Service												
	BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1946		6,500						2,300					35.4
1947	6,500	7,400	6,950	900				2,500	2,400				33.8
1948	7,400	8,700	8,050	1,300				2,600	2,550				29.9
1949	8,700	9,800	9,250	1,100				2,800	2,700				28.6
1950	9,800	10,500	10,150	700				3,000	2,900				28.6
1951	10,500	11,300	10,900	800				3,200	3,100				28.3
1952	11,300	12,300	11,800	1,000				3,400	3,300				27.6
1953	12,300	13,400	12,850	1,100				3,600	3,500				26.9
1954	13,400	14,600	14,000	1,200				3,800	3,700				26.0
1955	14,600	15,800	15,200	1,200				4,100	3,950				25.9
1956	15,800	17,400	16,600	1,600				4,300	4,200				24.7
1957	17,400	19,600	18,500	2,200				4,600	4,450				23.5
1958	19,600	22,000	20,800	2,400				4,900	4,750				22.3
1959	22,000	23,000	22,500	1,000				5,200	5,050				22.6
1960	23,000	25,000	24,000	2,000	2,700	700	1,100	5,600	5,400	11.7	3.0	4.6	22.4
1961	25,000	27,000	26,000	2,000	2,800	800	1,200	6,000	5,800	11.2	3.2	4.6	22.2
1962	27,000	29,000	28,000	2,000	2,900	900	1,300	6,400	6,200	10.7	3.3	4.6	22.1
1963	29,000	32,000	30,500	3,000	4,000	1,000	1,400	6,800	6,600	13.8	3.4	4.6	21.3
1964	32,000	34,000	33,000	2,000	2,900	900	1,600	7,500	7,150	9.1	2.8	4.8	22.1
1965	34,000	37,000	35,500	3,000	4,100	1,100	1,700	8,100	7,800	12.1	3.2	4.8	21.9
1966	37,000	40,000	38,500	3,000	4,100	1,100	1,900	8,900	8,500	11.1	3.0	4.9	22.3
1967	40,000	44,000	42,000	4,000	5,100	1,100	2,100	9,900	9,400	12.8	2.8	5.0	22.5

All Reporting LECs' Plant Related Rates

(Dollars in Millions)

	Telecommunications Plant in Service												
	BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1968	43,249	47,123	45,186	3,874	5,104	1,230	2,304	10,979	10,440	11.8	2.8	5.1	23.3
1969	47,175	51,724	49,450	4,549	6,022	1,473	2,507	12,072	11,526	12.8	3.1	5.1	23.3
1970	51,723	56,951	54,337	5,228	6,880	1,651	2,751	13,213	12,643	13.3	3.2	5.1	23.2
1971	56,972	63,090	60,031	6,118	8,052	1,933	3,016	14,447	13,830	14.1	3.4	5.0	22.9
1972	63,068	69,870	66,469	6,802	9,044	2,242	3,330	15,643	15,045	14.3	3.6	5.0	22.4
1973	69,951	77,442	73,697	7,491	10,085	2,595	3,659	16,769	16,206	14.4	3.7	5.0	21.7
1974	77,107	84,888	80,998	7,781	11,024	3,243	4,047	17,685	17,227	14.3	4.2	5.0	20.8
1975	84,799	92,284	88,542	7,485	10,881	3,396	4,486	18,809	18,247	12.8	4.0	5.1	20.4
1976	92,591	99,879	96,235	7,288	11,139	3,856	4,934	20,163	19,486	12.0	4.2	5.1	20.2
1977	101,237	109,496	105,367	8,259	12,438	4,136	5,630	21,903	21,033	12.3	4.1	5.3	20.0
1978	109,502	119,336	114,419	9,834	14,549	4,681	6,199	23,474	22,689	13.3	4.3	5.4	19.7
1979	118,612	129,972	124,292	11,360	16,843	5,452	6,820	24,881	24,178	14.2	4.6	5.5	19.1
1980	129,767	142,096	135,932	12,329	18,694	6,378	7,804	26,512	25,697	14.4	4.9	5.7	18.7
1981	142,121	155,845	148,983	13,724	19,482	5,749	8,664	29,932	28,222	13.7	4.0	5.8	19.2
1982	155,907	168,075	161,991	12,168	18,466	6,409	9,757	33,957	31,945	11.8	4.1	6.0	20.2
1983	169,162	178,482	173,822	9,320	16,076	6,664	11,340	39,571	36,764	9.5	3.9	6.5	22.2
1984	152,315	159,798	156,057	7,483	14,994	4,994	10,048	37,996	38,784	9.8	3.3	6.4	23.8
1985	174,218	186,294	180,256	12,076	18,972	6,687	11,469	43,837	40,917	10.9	3.8	6.9	25.7
1986	186,972	198,758	192,865	11,786	18,907	6,954	13,142	51,543	47,690	10.1	3.7	7.5	28.4
1987	199,063	209,687	204,375	10,624	18,535	7,886	15,263	61,471	56,507	9.3	4.0	8.1	31.6
1988	210,720	220,395	215,558	9,675	17,947	8,949	16,627	74,123	67,797	8.5	4.2	7.7	33.6

All Reporting LECs' Plant Related Rates

(Dollars in Millions)

	Telecommunications Plant in Service												
	BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1989	220,126	229,326	224,726	9,200	16,868	8,145	16,839	83,115	78,619	7.7	3.7	7.5	36.2
1990	229,103	235,247	232,175	6,144	18,473	12,380	16,955	88,146	85,631	8.1	5.4	7.3	37.5
1991	236,093	241,620	238,857	5,527	18,322	12,896	16,607	91,427	89,787	7.8	5.5	7.0	37.8
1992	242,599	249,508	246,054	6,909	18,877	12,138	17,036	98,053	94,740	7.8	5.0	6.9	39.3
1993	250,570	258,782	254,676	8,212	18,864	11,217	17,676	106,079	102,066	7.5	4.5	6.9	41.0
1994	259,216	267,443	263,330	8,227	18,781	10,990	18,656	114,598	110,339	7.2	4.2	7.1	42.8
1995	268,555	278,946	273,751	10,391	19,482	9,411	19,393	125,789	120,194	7.3	3.5	7.1	45.1
1996	278,974	291,569	285,272	12,595	22,401	10,271	20,527	137,278	131,534	8.0	3.7	7.2	47.1
1997	291,569	303,809	297,689	12,240	23,171	11,627	21,156	148,163	142,721	7.9	4.0	7.1	48.8
1998	303,689	319,767	311,728	16,078	24,218	9,337	21,947	162,102	155,133	8.0	3.1	7.0	50.7
1999	319,809	335,486	327,648	15,677	26,304	11,641	23,455	174,922	168,512	8.2	3.6	7.2	52.1
2000	335,486	354,759	345,123	19,273	28,789	13,755	24,939	187,922	181,422	8.6	4.1	7.2	53.0
2001	332,576	355,421	343,999	22,845	30,402	8,855	23,560	191,177	189,550	9.1	2.7	6.8	53.8
Avg.	'60-'83									12.6	3.6	5.2	
	'84-'01									8.4	4.0	7.2	

Source: 1946 -1967 Report on Telephone Industry Depreciation, Tax and Capital/Expense Policy, Accounting and Audits Division, FCC, April 15, 1987, pp.6, 9
1968 - 1983 FCC Statistics of Common Carriers, Tables 12 and 16
1984 - 1987 FCC Statistics of Common Carriers, Tables 10 and 14
1988 - 2000 FCC Statistics of Common Carriers, Tables 2.7 and 2.9
2001 - FCC Statistics of Common Carriers, Tables 2.7 and 2.8

Note 1: 1946 - 1983 Includes AT&T

Note 2: Cols l and m for 1985-1987 from Table 14 data as follows:
Col l = 1985 Col g/165,076
1986 Col g/175,926
1987 Col g/187,920
Col m = 1985 Col h/170,355
1986 Col h/181,496
1987 Col h/194,343

9/25/02 - Snavely King Majoros O'Connor & Lee, Inc.

Total BOCs - Plant Related Rates

(Dollars in Millions)

	Telecommunications Plant in Service												
	BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG. Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1992	222,248	231,644	226,946	9,396	17,643	8,352	15,642	90,164	86,432	7.9	3.8	6.9	38.9
1993	233,803	242,013	237,908	8,210	17,619	9,991	16,686	98,839	94,501	7.5	4.3	7.0	40.8
1994	243,361	251,329	247,345	7,968	17,699	10,157	17,684	107,378	103,109	7.3	4.2	7.1	42.7
1995	251,987	261,670	256,828	9,683	18,248	8,909	18,369	117,712	112,545	7.2	3.5	7.2	45.0
1996	262,604	274,323	268,463	11,719	21,086	9,812	19,457	128,894	123,303	8.0	3.7	7.2	47.0
1997	274,323	285,837	280,080	11,514	21,794	11,019	19,972	139,070	133,982	7.9	4.0	7.1	48.7
1998	285,865	300,001	292,933	14,137	22,544	8,994	20,910	151,774	145,422	7.9	3.1	7.1	50.6
1999	300,001	314,445	307,223	14,444	24,633	11,279	21,501	163,582	157,678	8.2	3.8	7.0	52.0
2000	314,445	332,576	323,511	18,131	29,998	13,300	22,441	175,632	169,607	9.5	4.2	6.9	52.8
2001	332,576	355,421	343,999	22,844	30,402	8,855	23,722	191,177	183,404	9.1	2.7	6.9	53.8
2002	312,516	320,906	316,711	8,390	17,516	11,433	21,354	182,744	186,960	5.6	3.7	6.7	56.9
Avg.										7.8	3.7	7.0	

Source: ARMIS 43-02 Reports, Table B-1 and B-5 1992-2002 (Qwest data for 2002 not yet available)

Note: Excludes Customer Premises Wiring

All BOCs
Telephone Plant in Service
Geometric Mean Turnover Analysis

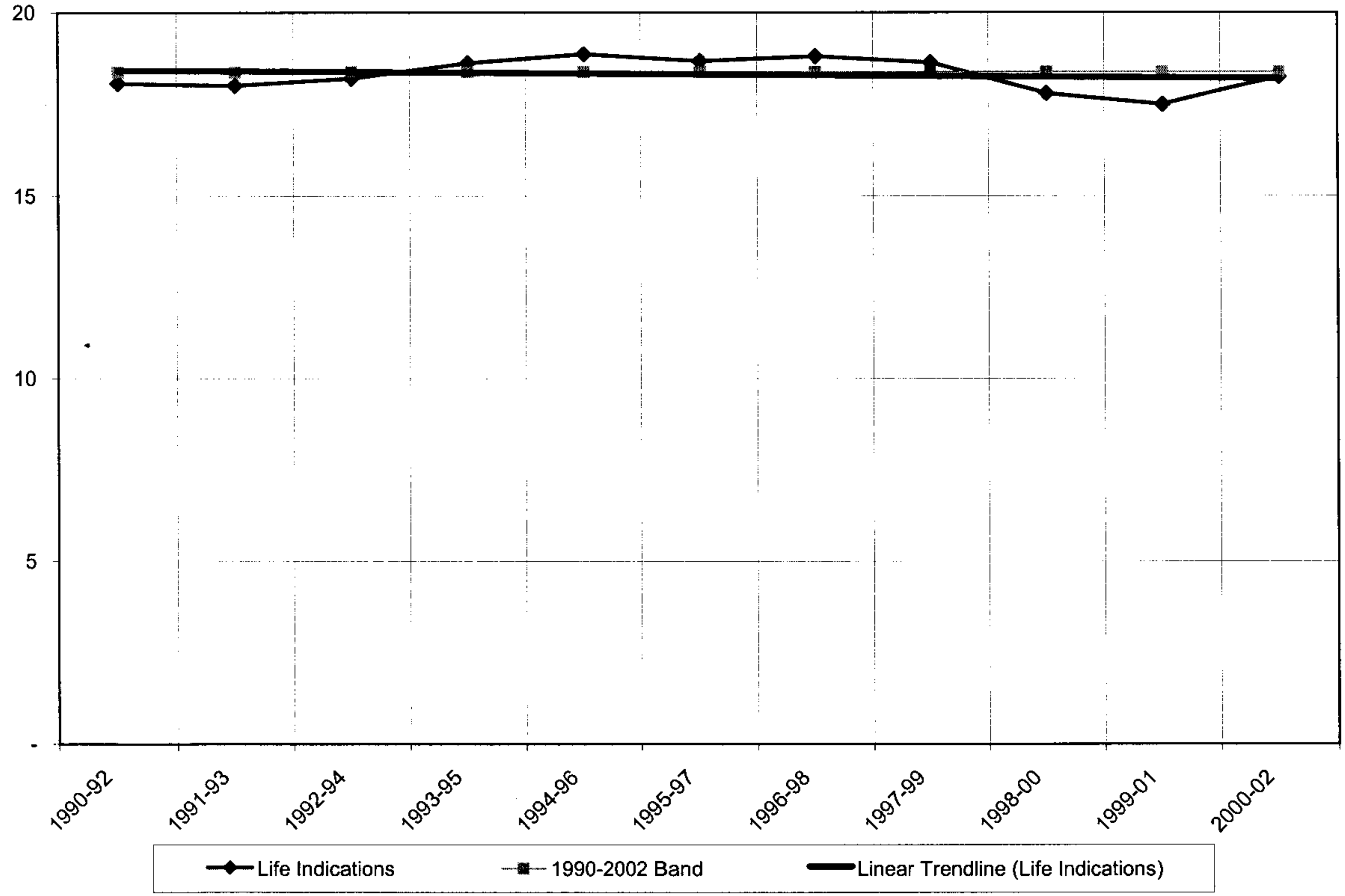
Total Plant in Service
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	204,414,500	209,016,448	17,205,219	8,001,324	0.08232	0.03828	17.81							
1991	213,618,396	217,933,025	17,244,681	8,820,148	0.07913	0.04047	17.67							
1992	222,247,653	228,025,316	17,747,685	8,351,588	0.07783	0.03663	18.73	1990-92	654,974,789	52,197,585	25,173,060	0.07969	0.03843	18.07
1993	233,802,979	238,582,051	18,201,087	9,990,863	0.07629	0.04188	17.69	1991-93	684,540,392	53,193,453	27,162,599	0.07771	0.03968	18.01
1994	243,361,123	247,673,948	18,124,752	10,156,983	0.07318	0.04101	18.25	1992-94	714,281,315	54,073,524	28,499,434	0.07570	0.03990	18.20
1995	251,986,773	257,295,384	18,591,619	8,908,769	0.07226	0.03462	19.99	1993-95	743,551,383	54,917,458	29,056,615	0.07386	0.03908	18.61
1996	262,603,994	268,463,302	21,530,999	9,812,382	0.08020	0.03655	18.47	1994-96	773,432,634	58,247,370	28,878,134	0.07531	0.03734	18.86
1997	274,322,610	280,093,640	22,533,338	11,019,087	0.08045	0.03934	17.78	1995-97	805,852,326	62,655,956	29,740,238	0.07775	0.03691	18.67
1998	285,864,670	292,932,966	23,130,923	8,994,332	0.07896	0.03070	20.31	1996-98	841,489,908	67,195,260	29,825,801	0.07985	0.03544	18.80
1999	300,001,261	307,223,229	25,723,207	11,279,274	0.08373	0.03671	18.04	1997-99	880,249,835	71,387,468	31,292,693	0.08110	0.03555	18.62
2000	314,445,197	323,510,825	31,431,636	13,300,386	0.09716	0.04111	15.82	1998-00	923,667,019	80,285,766	33,573,992	0.08692	0.03635	17.79
2001	332,576,452	322,546,233	31,699,332	8,855,064	0.09828	0.02745	19.25	1999-01	953,280,286	88,854,175	33,434,724	0.09321	0.03507	17.49
2002	312,516,013	316,711,129	19,823,418	11,433,186	0.06259	0.03610	21.04	2000-02	962,768,186	82,954,386	33,588,636	0.08616	0.03489	18.24
1990-2002	3,451,761,621	3,510,007,494	282,987,896	128,923,386	0.08062	0.03673	18.38							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002
Note: Excludes Customer Premises Wiring

Company: All BOCs
Account: Total Plant in Service

Geometric Mean Rolling Band Analysis
Life Indications - Total Plant in Service



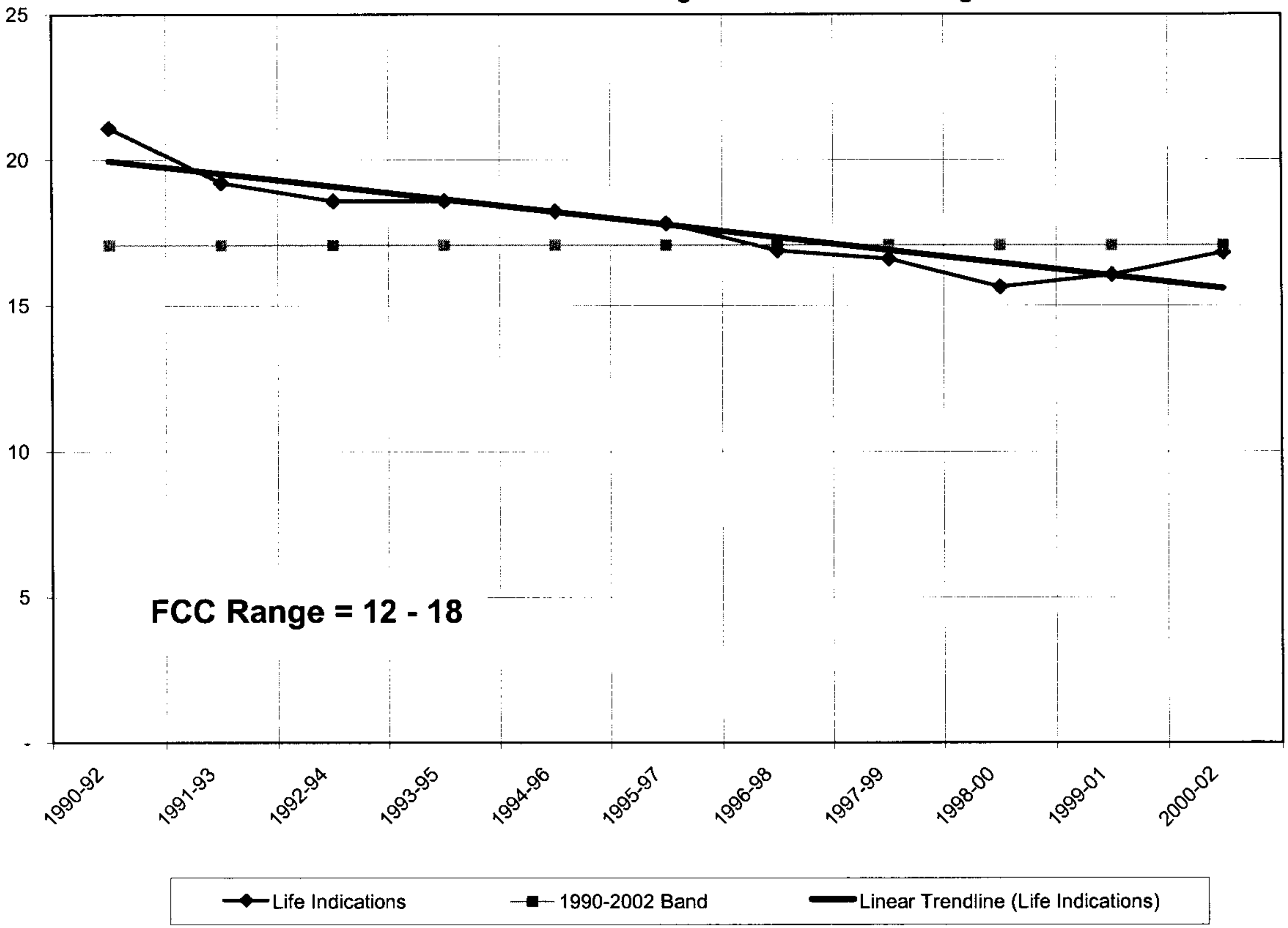
Total BOCs
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2212 - Digital Electronic Switching
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	21,041,303	22,770,484	3,777,680	319,319	0.16590	0.01402	20.73							
1991	24,499,664	26,160,700	3,759,724	455,136	0.14372	0.01740	20.00							
1992	27,821,736	29,881,801	4,149,613	421,805	0.13887	0.01412	22.59	1990-92	78,812,984	11,687,017	1,196,260	0.14829	0.01518	21.08
1993	31,941,865	33,793,300	4,300,708	914,083	0.12727	0.02705	17.04	1991-93	89,835,801	12,210,045	1,791,024	0.13592	0.01994	19.21
1994	35,644,735	37,177,269	3,965,988	1,037,699	0.10668	0.02791	18.33	1992-94	100,852,369	12,416,309	2,373,587	0.12311	0.02354	18.58
1995	38,709,802	40,117,284	3,661,539	1,042,758	0.09127	0.02599	20.53	1993-95	111,087,852	11,928,235	2,994,540	0.10738	0.02696	18.59
1996	41,524,765	43,299,626	4,949,795	1,400,076	0.11431	0.03233	16.45	1994-96	120,594,178	12,577,322	3,480,533	0.10429	0.02886	18.23
1997	45,074,486	47,040,869	5,335,705	1,402,938	0.11343	0.02982	17.19	1995-97	130,457,778	13,947,039	3,845,772	0.10691	0.02948	17.81
1998	49,007,251	51,147,137	5,834,558	1,554,788	0.11407	0.03040	16.98	1996-98	141,487,631	16,120,058	4,357,802	0.11393	0.03080	16.88
1999	53,287,022	54,820,712	5,276,906	2,209,527	0.09626	0.04030	16.05	1997-99	153,008,717	16,447,169	5,167,253	0.10749	0.03377	16.60
2000	56,354,401	58,129,406	6,160,283	2,610,272	0.10598	0.04490	14.50	1998-00	164,097,254	17,271,747	6,374,587	0.10525	0.03885	15.64
2001	59,904,410	57,798,017	5,294,552	1,941,023	0.09160	0.03358	18.03	1999-01	170,748,134	16,731,741	6,760,822	0.09799	0.03960	16.05
2002	55,691,623	55,973,265	3,160,846	2,597,563	0.05647	0.04641	19.53	2000-02	171,900,687	14,615,681	7,148,858	0.08502	0.04159	16.82
1990-2002	540,503,063	558,109,865	59,627,897	17,906,987	0.10684	0.03209	17.08							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Geometric Mean Rolling Band Analysis
Life Indications - Account 2212 - Digital Electronic Switching



Total BOCs
Telephone Plant in Service
Geometric Mean Turnover Analysis

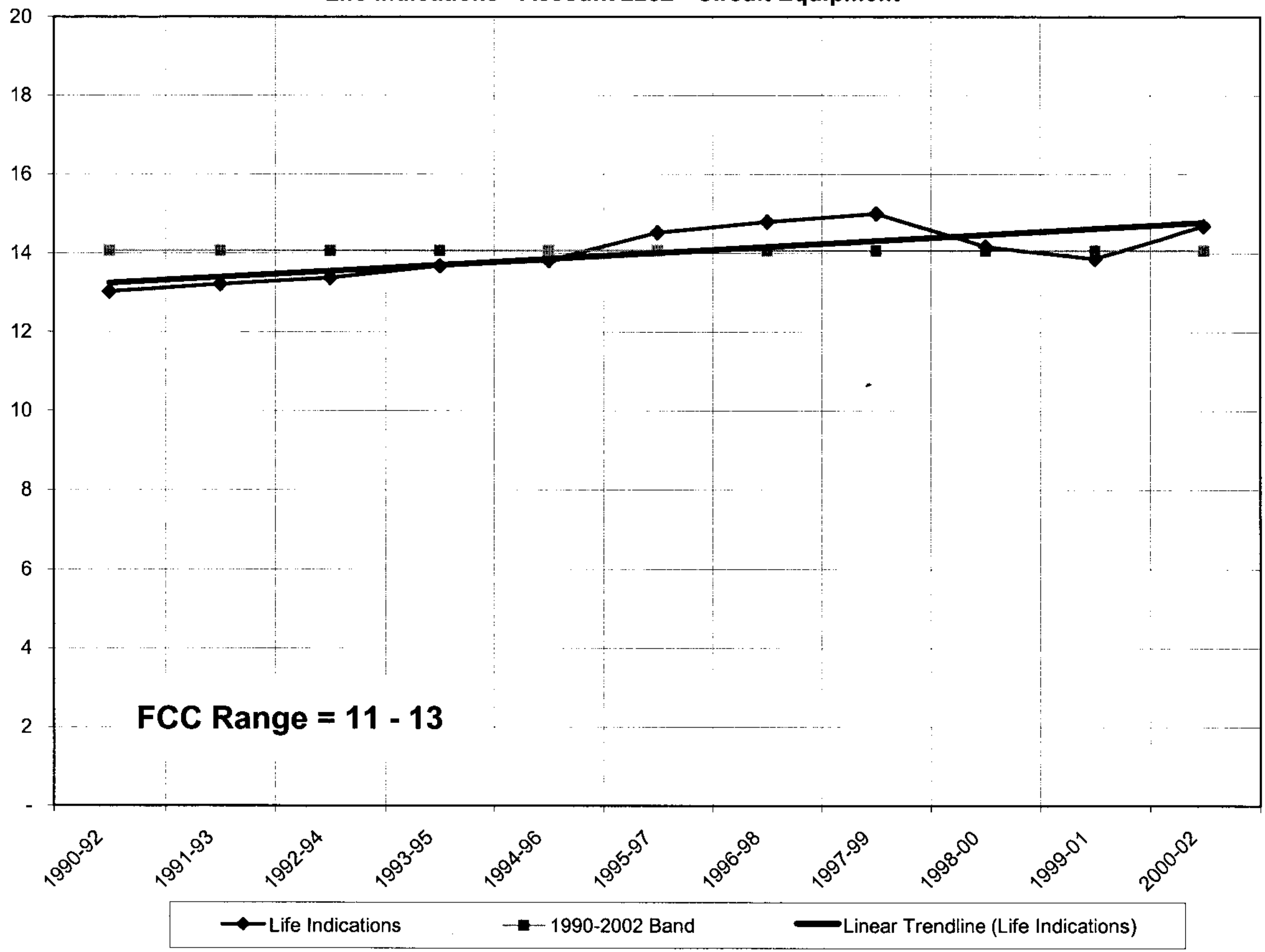
Account 2232 - Circuit Equipment
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	33,047,059	33,740,504	3,418,613	2,031,725	0.10132	0.06022	12.80							
1991	34,433,948	35,113,451	3,555,168	2,196,290	0.10125	0.06255	12.57							
1992	35,792,953	36,844,557	3,804,308	1,885,258	0.10325	0.05117	13.76	1990-92	105,698,511	10,778,089	6,113,273	0.10197	0.05784	13.02
1993	37,896,160	39,079,893	4,183,302	2,039,822	0.10704	0.05220	13.38	1991-93	111,037,900	11,542,778	6,121,370	0.10395	0.05513	13.21
1994	40,263,626	41,709,985	4,900,680	2,081,492	0.11749	0.04990	13.06	1992-94	117,634,435	12,888,290	6,006,572	0.10956	0.05106	13.37
1995	43,156,344	44,784,929	5,022,471	1,856,763	0.11215	0.04146	14.67	1993-95	125,574,807	14,106,453	5,978,077	0.11234	0.04761	13.67
1996	46,413,514	48,448,061	6,090,773	2,021,683	0.12572	0.04173	13.81	1994-96	134,942,975	16,013,924	5,959,938	0.11867	0.04417	13.81
1997	50,482,607	52,732,884	6,396,252	1,895,697	0.12130	0.03595	15.14	1995-97	145,965,874	17,509,496	5,774,143	0.11996	0.03956	14.52
1998	54,983,161	57,704,804	7,342,492	1,899,211	0.12724	0.03291	15.45	1996-98	158,885,748	19,829,517	5,816,591	0.12480	0.03661	14.79
1999	60,426,446	63,360,812	8,197,243	2,328,511	0.12937	0.03675	14.50	1997-99	173,798,499	21,935,987	6,123,419	0.12622	0.03523	15.00
2000	66,295,177	70,616,155	11,250,250	2,608,294	0.15932	0.03694	13.04	1998-00	191,681,770	26,789,985	6,836,016	0.13976	0.03566	14.16
2001	74,937,132	74,665,832	11,823,057	2,317,794	0.15835	0.03104	14.26	1999-01	208,642,798	31,270,550	7,254,599	0.14988	0.03477	13.85
2002	74,394,532	76,237,563	6,466,126	2,780,065	0.08482	0.03647	17.98	2000-02	221,519,549	29,539,433	7,706,153	0.13335	0.03479	14.68
1990-2002	652,522,659	675,039,426	82,450,735	27,942,605	0.12214	0.04139	14.06							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Total BOCs
Account: 2232 - Circuit Equipment

Geometric Mean Rolling Band Analysis
Life Indications - Account 2232 - Circuit Equipment



Total BOCs
Telephone Plant in Service
Geometric Mean Turnover Analysis

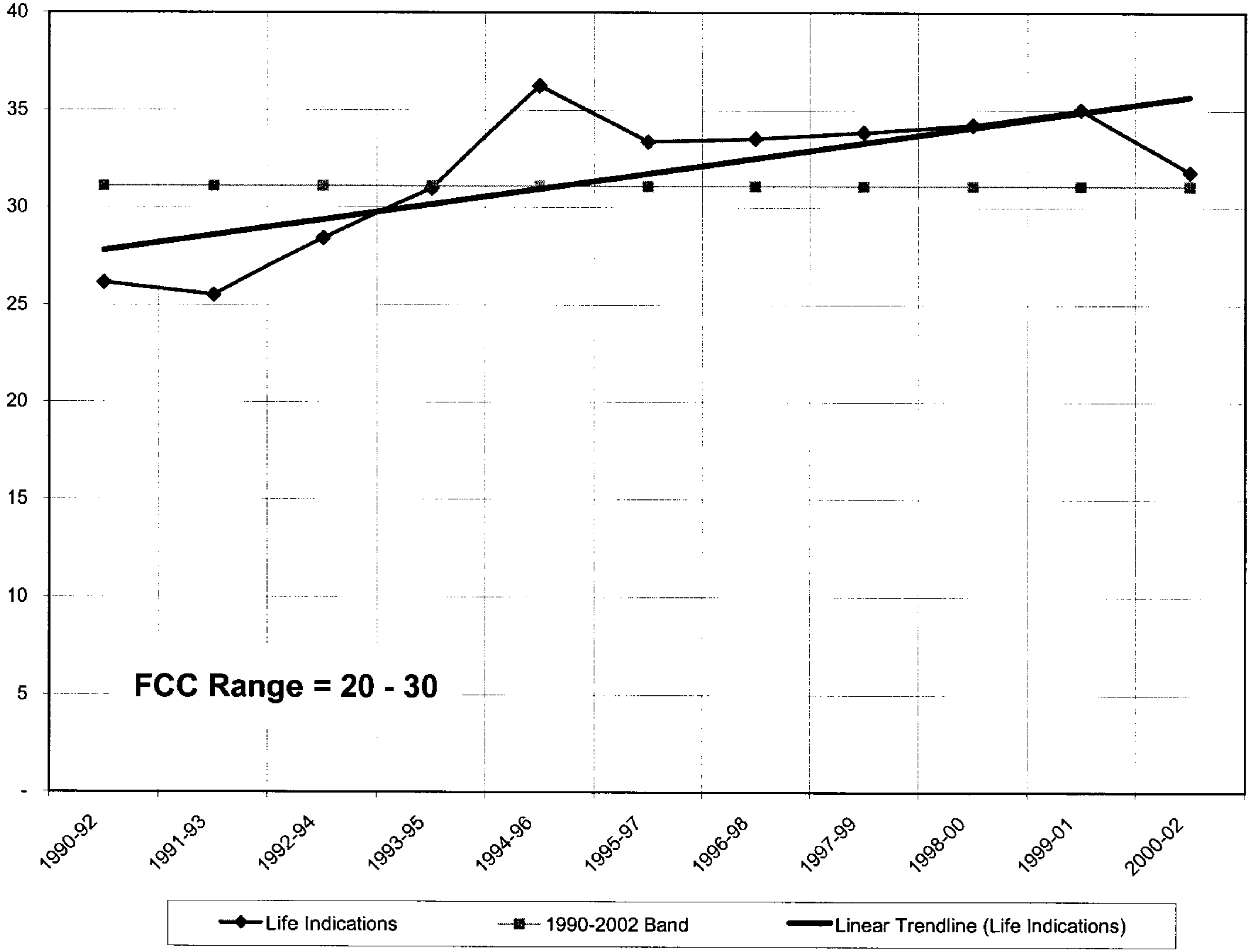
Account 2421 - Aerial Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	19,932,601	20,474,027	1,488,651	405,799	0.07271	0.01982	26.34							
1991	21,015,452	21,486,816	1,467,426	524,628	0.06829	0.02442	24.49							
1992	21,958,180	22,681,424	1,597,611	412,121	0.07044	0.01817	27.95	1990-92	64,642,266	4,553,688	1,342,548	0.07044	0.02077	26.14
1993	23,404,667	24,011,031	1,575,461	602,852	0.06561	0.02511	24.64	1991-93	68,179,271	4,640,498	1,539,601	0.06806	0.02258	25.51
1994	24,617,395	25,145,836	1,393,316	385,166	0.05541	0.01532	34.33	1992-94	71,838,290	4,566,388	1,400,139	0.06356	0.01949	28.41
1995	25,674,276	26,289,399	1,473,692	348,321	0.05606	0.01325	36.69	1993-95	75,446,265	4,442,469	1,336,339	0.05888	0.01771	30.96
1996	26,904,521	27,569,153	1,648,430	319,167	0.05979	0.01158	38.01	1994-96	79,004,387	4,515,438	1,052,654	0.05715	0.01332	36.24
1997	28,233,785	28,851,880	1,813,363	577,178	0.06285	0.02000	28.20	1995-97	82,710,432	4,935,485	1,244,666	0.05967	0.01505	33.37
1998	29,469,975	30,166,443	1,770,909	377,971	0.05870	0.01253	36.87	1996-98	86,587,476	5,232,702	1,274,316	0.06043	0.01472	33.53
1999	30,862,910	31,521,473	1,713,215	396,093	0.05435	0.01257	38.27	1997-99	90,539,796	5,297,487	1,351,242	0.05851	0.01492	33.84
2000	32,180,036	32,709,683	1,740,808	681,514	0.05322	0.02084	30.03	1998-00	94,397,599	5,224,932	1,455,578	0.05535	0.01542	34.23
2001	33,239,330	33,260,020	1,786,288	402,029	0.05371	0.01209	39.25	1999-01	97,491,176	5,240,311	1,479,636	0.05375	0.01518	35.01
2002	33,280,709	33,491,651	1,345,453	923,569	0.04017	0.02758	30.04	2000-02	99,461,354	4,872,549	2,007,112	0.04899	0.02018	31.80
1990-2002	350,773,837	357,658,833	20,814,623	6,356,408	0.05820	0.01777	31.09							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Total BOCs
Account: 2421 - Aerial Cable

Geometric Mean Rolling Band Analysis
Life Indications - Account 2421 - Aerial Cable



Total BOCs
Telephone Plant in Service
Geometric Mean Turnover Analysis

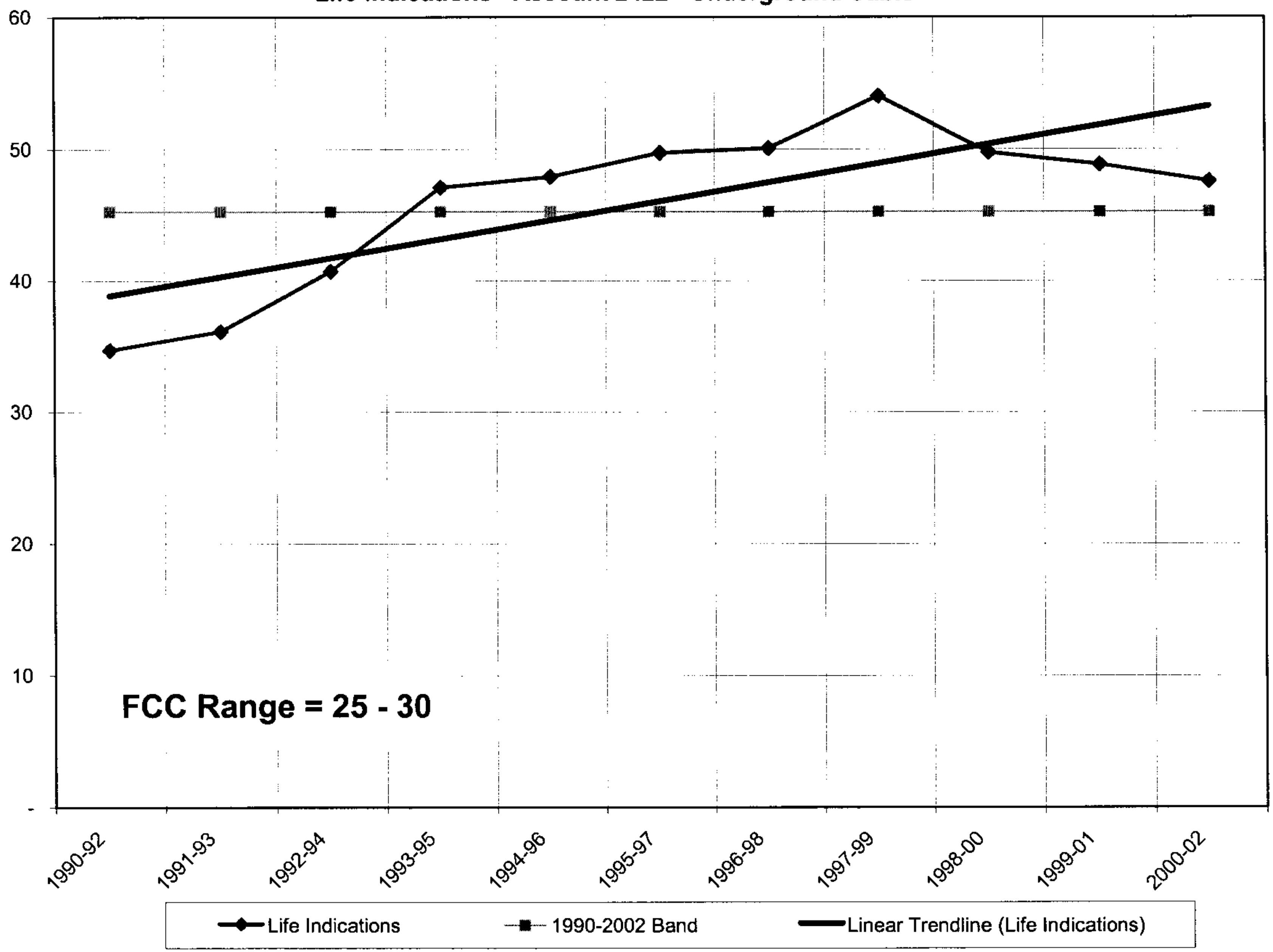
Account 2422 - Underground Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	18,427,627	18,884,060	1,118,151	205,284	0.05921	0.01087	39.42							
1991	19,340,493	19,737,868	1,120,831	326,010	0.05679	0.01652	32.65							
1992	20,135,242	20,628,773	1,254,615	304,454	0.06082	0.01476	33.38	1990-92	59,250,701	3,493,597	835,748	0.05896	0.01411	34.68
1993	21,122,304	21,513,345	995,675	240,588	0.04628	0.01118	43.96	1991-93	61,879,985	3,371,121	871,052	0.05448	0.01408	36.11
1994	21,904,385	22,262,430	949,461	236,910	0.04265	0.01064	46.94	1992-94	64,404,547	3,199,751	781,952	0.04968	0.01214	40.72
1995	22,620,474	22,995,797	924,168	222,917	0.04019	0.00969	50.66	1993-95	66,771,571	2,869,304	700,415	0.04297	0.01049	47.10
1996	23,371,120	23,792,912	1,086,034	242,453	0.04565	0.01019	46.37	1994-96	69,051,139	2,959,663	702,280	0.04286	0.01017	47.90
1997	24,214,704	24,732,545	1,212,786	177,106	0.04904	0.00716	53.37	1995-97	71,521,254	3,222,988	642,476	0.04506	0.00898	49.70
1998	25,250,385	25,736,618	1,185,013	212,549	0.04604	0.00826	51.28	1996-98	74,262,074	3,483,833	632,108	0.04691	0.00851	50.04
1999	26,222,850	26,727,306	1,189,212	180,301	0.04449	0.00675	57.72	1997-99	77,196,468	3,587,011	569,956	0.04647	0.00738	53.99
2000	27,231,761	27,814,361	1,452,965	287,768	0.05224	0.01035	43.02	1998-00	80,278,284	3,827,190	680,618	0.04767	0.00848	49.74
2001	28,396,960	27,588,929	1,769,540	173,116	0.06414	0.00627	49.85	1999-01	82,130,595	4,411,717	641,185	0.05372	0.00781	48.83
2002	26,780,898	27,209,892	1,095,657	237,670	0.04027	0.00873	53.32	2000-02	82,613,181	4,318,162	698,554	0.05227	0.00846	47.57
1990-2002	305,019,203	309,624,832	15,354,108	3,047,126	0.04959	0.00984	45.27							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Total BOCs
Account: 2422 - Underground Cable

Geometric Mean Rolling Band Analysis
Life Indications - Account 2422 - Underground Cable



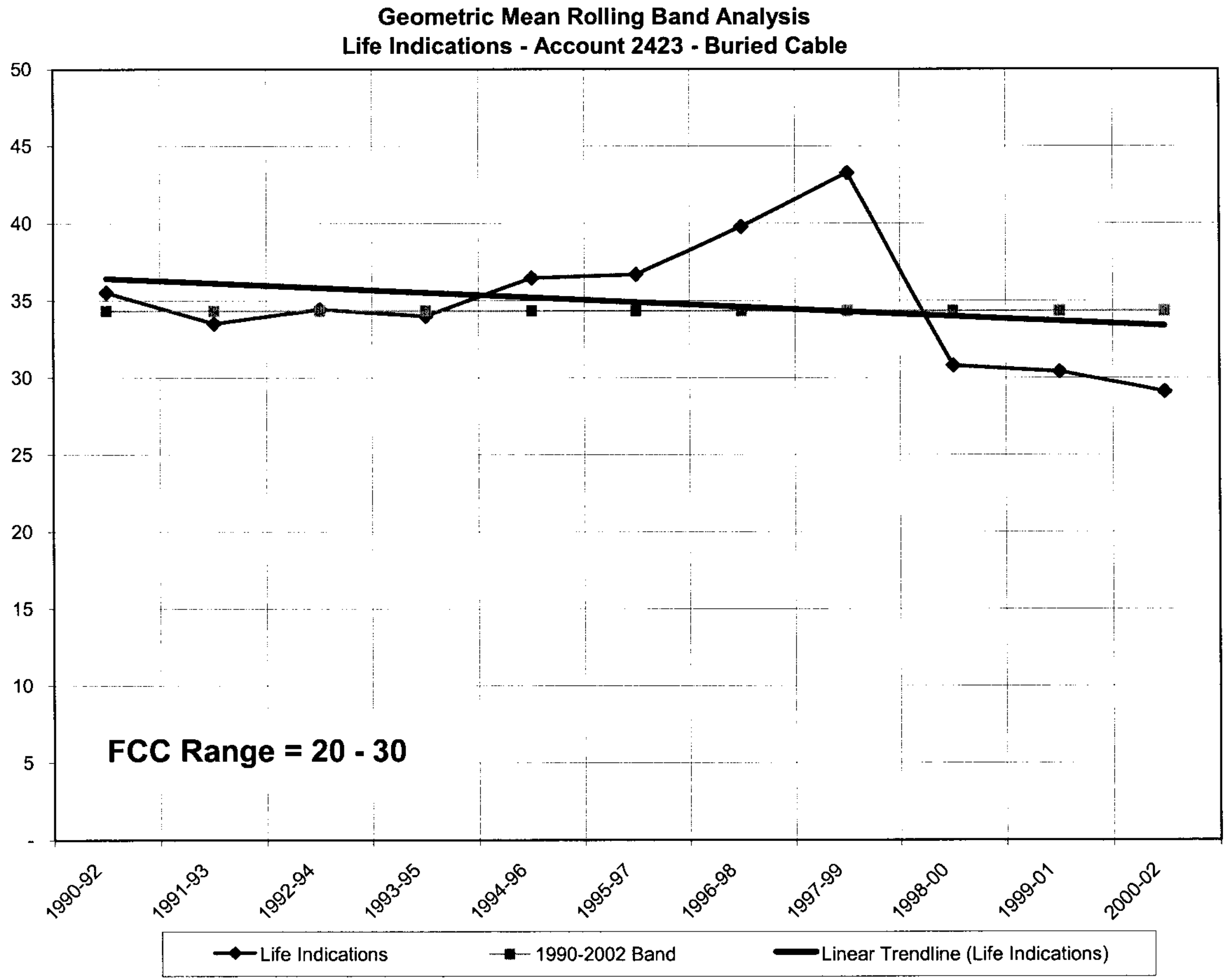
Total BOCs
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2423 - Buried Cable
($ Thousands)

								3 Year Band						
Year	**BOY Plant Balance**	**Avg. Plant Balance**	**Single Year Additions**	**Single Year Retirements**	**Addition Ratio**	**Retirement Ratio**	**Geometric Mean Life Estimate**	**3 Year Band**	**Avg. Plant Balance**	**Additions**	**Retirements**	**Addition Ratio**	**Retirement Ratio**	**Geometric Mean Life Estimate**
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	29,574,489	30,480,141	2,173,423	362,120	0.07131	0.01188	34.36							
1991	31,385,793	32,209,545	2,092,217	444,782	0.06496	0.01381	33.39							
1992	33,033,297	34,356,889	2,151,582	356,329	0.06262	0.01037	39.24	1990-92	97,046,575	6,417,222	1,163,231	0.06613	0.01199	35.52
1993	35,680,480	36,771,226	2,388,639	632,212	0.06496	0.01719	29.92	1991-93	103,337,659	6,632,438	1,433,323	0.06418	0.01387	33.52
1994	37,861,971	38,920,505	2,307,207	503,758	0.05928	0.01294	36.10	1992-94	110,048,619	6,847,428	1,492,299	0.06222	0.01356	34.43
1995	39,979,038	40,993,899	2,324,385	541,714	0.05670	0.01321	36.53	1993-95	116,685,629	7,020,231	1,677,684	0.06016	0.01438	34.00
1996	42,008,759	43,158,320	2,789,316	490,193	0.06463	0.01136	36.91	1994-96	123,072,723	7,420,908	1,535,665	0.06030	0.01248	36.46
1997	44,307,881	45,500,819	2,910,243	524,368	0.06396	0.01152	36.83	1995-97	129,653,038	8,023,944	1,556,275	0.06189	0.01200	36.69
1998	46,693,757	47,839,267	2,682,101	391,079	0.05606	0.00817	46.71	1996-98	136,498,406	8,381,660	1,405,640	0.06140	0.01030	39.77
1999	48,984,777	50,135,463	2,711,308	409,939	0.05408	0.00818	47.55	1997-99	143,475,549	8,303,652	1,325,386	0.05788	0.00924	43.25
2000	51,286,149	51,945,714	3,258,848	1,939,719	0.06274	0.03734	20.66	1998-00	149,920,444	8,652,257	2,740,737	0.05771	0.01828	30.79
2001	52,605,279	48,864,849	3,041,840	386,230	0.06225	0.00790	45.08	1999-01	150,946,026	9,011,996	2,735,888	0.05970	0.01812	30.40
2002	45,124,418	45,695,760	1,905,991	763,307	0.04171	0.01670	37.88	2000-02	146,506,323	8,206,679	3,089,256	0.05602	0.02109	29.10
1990-2002	538,526,088	546,872,395	32,737,100	7,745,750	0.05986	0.01416	34.34							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Total BOCs
Account: 2423 - Buried Cable



BellSouth Corporation
Telephone Plant in Service
Geometric Mean Turnover Analysis

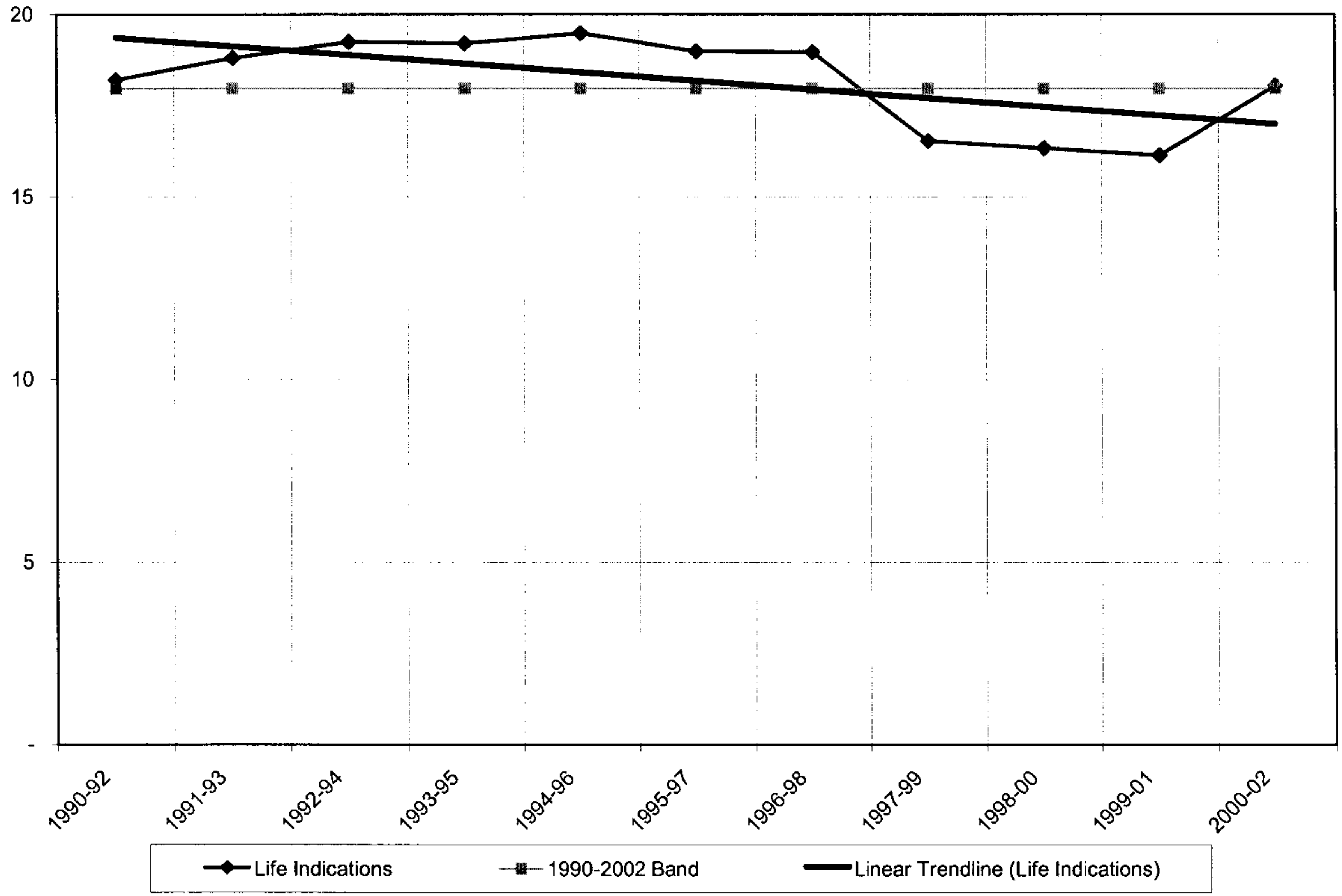
Total Plant in Service
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	32,462,089	33,339,280	3,025,848	1,271,466	0.09076	0.03814	17.00							
1991	34,216,471	35,125,146	2,994,009	1,381,385	0.08524	0.03933	17.27							
1992	36,033,821	36,838,704	2,768,347	1,158,582	0.07515	0.03145	20.57	1990-92	105,303,130	8,788,204	3,811,433	0.08346	0.03619	18.19
1993	37,643,586	38,544,068	3,142,302	1,341,339	0.08152	0.03480	18.77	1991-93	110,507,917	8,904,658	3,881,306	0.08058	0.03512	18.80
1994	39,444,549	40,269,547	3,142,614	1,492,618	0.07804	0.03707	18.59	1992-94	115,652,318	9,053,263	3,992,539	0.07828	0.03452	19.24
1995	41,094,545	42,014,256	3,188,103	1,348,682	0.07588	0.03210	20.26	1993-95	120,827,870	9,473,019	4,182,639	0.07840	0.03462	19.20
1996	42,933,966	44,126,084	3,730,958	1,346,722	0.08455	0.03052	19.69	1994-96	126,409,887	10,061,675	4,188,022	0.07960	0.03313	19.47
1997	45,318,202	46,260,748	3,750,836	1,865,744	0.08108	0.04033	17.49	1995-97	132,401,088	10,669,897	4,561,148	0.08059	0.03445	18.98
1998	47,203,294	48,360,282	3,834,959	1,520,984	0.07930	0.03145	20.02	1996-98	138,747,114	11,316,753	4,733,450	0.08156	0.03412	18.96
1999	49,517,269	50,684,158	5,063,214	2,729,436	0.09990	0.05385	13.63	1997-99	145,305,188	12,649,009	6,116,164	0.08705	0.04209	16.52
2000	51,851,047	53,823,228	5,700,416	1,756,054	0.10591	0.03263	17.01	1998-00	152,867,668	14,598,589	6,006,474	0.09550	0.03929	16.32
2001	55,795,409	57,758,876	5,619,003	1,692,069	0.09728	0.02930	18.73	1999-01	162,266,262	16,382,633	6,177,559	0.10096	0.03807	16.13
2002	59,722,343	60,641,030	4,249,464	2,412,091	0.07008	0.03978	18.94	2000-02	172,223,134	15,568,883	5,860,214	0.09040	0.03403	18.03
1990-2002	573,236,591	587,785,405	50,210,073	21,317,172	0.08542	0.03627	17.97							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002
Note: Excludes Customer Premises Wiring

Company: BellSouth
Account: Total Plant in Service

Geometric Mean Rolling Band Analysis
Life Indications - Total Plant in Service



BellSouth Corporation
Telephone Plant in Service
Geometric Mean Turnover Analysis

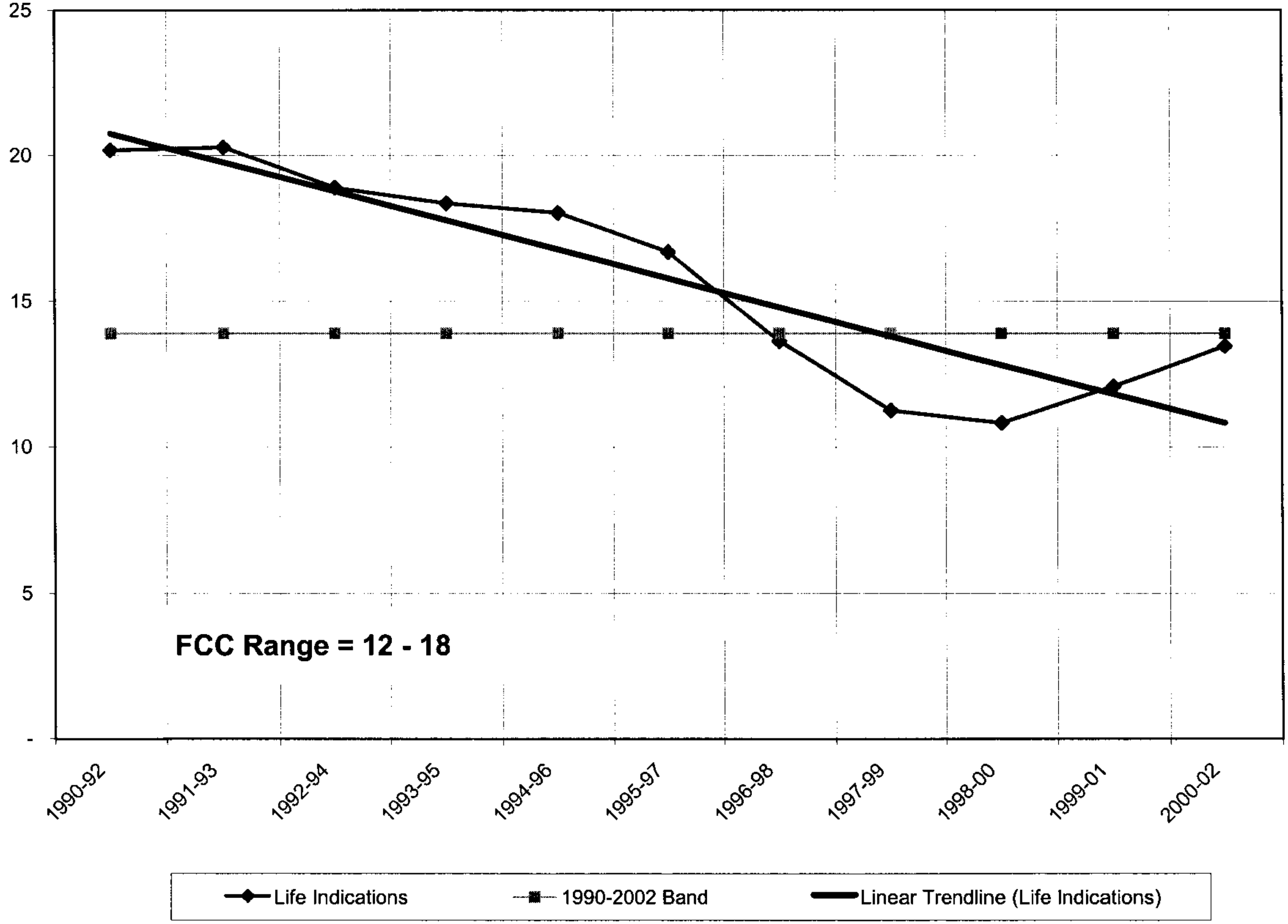
Account 2212 - Digital Electronic Switching
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	3,105,976	3,409,523	666,315	59,221	0.19543	0.01737	17.16							
1991	3,713,070	4,005,820	645,546	77,529	0.16115	0.01935	17.91							
1992	4,298,570	4,507,411	476,134	58,453	0.10563	0.01297	27.02	1990-92	11,922,754	1,787,995	195,203	0.14996	0.01637	20.18
1993	4,716,251	5,013,482	702,698	108,236	0.14016	0.02159	18.18	1991-93	13,526,713	1,824,378	244,218	0.13487	0.01805	20.26
1994	5,310,713	5,536,072	634,642	183,925	0.11464	0.03322	16.20	1992-94	15,056,964	1,813,474	350,614	0.12044	0.02329	18.88
1995	5,761,430	5,915,395	463,187	155,257	0.07830	0.02625	22.06	1993-95	16,464,949	1,800,527	447,418	0.10936	0.02717	18.34
1996	6,069,360	6,354,881	757,987	186,945	0.11928	0.02942	16.88	1994-96	17,806,348	1,855,816	526,127	0.10422	0.02955	18.02
1997	6,640,402	6,883,017	796,101	310,872	0.11566	0.04517	13.84	1995-97	19,153,293	2,017,275	653,074	0.10532	0.03410	16.69
1998	7,125,631	7,383,699	936,706	420,570	0.12686	0.05696	11.76	1996-98	20,621,597	2,490,794	918,387	0.12079	0.04454	13.63
1999	7,641,767	7,891,781	1,125,913	625,886	0.14267	0.07931	9.40	1997-99	22,158,496	2,858,720	1,357,328	0.12901	0.06126	11.25
2000	8,141,794	8,499,986	1,164,707	448,324	0.13702	0.05274	11.76	1998-00	23,775,465	3,227,326	1,494,780	0.13574	0.06287	10.82
2001	8,858,177	9,121,467	865,617	339,037	0.09490	0.03717	16.84	1999-01	25,513,233	3,156,237	1,413,247	0.12371	0.05539	12.08
2002	9,384,757	9,367,261	668,336	703,328	0.07135	0.07508	13.66	2000-02	26,988,714	2,698,660	1,490,689	0.09999	0.05523	13.46
1990-2002	80,767,898	83,889,793	9,903,889	3,677,583	0.11806	0.04384	13.90							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: BellSouth
Account: 2212 - Digital Electronic Switching

Geometric Mean Rolling Band Analysis
Life Indications - Account 2212 - Digital Electronic Switching



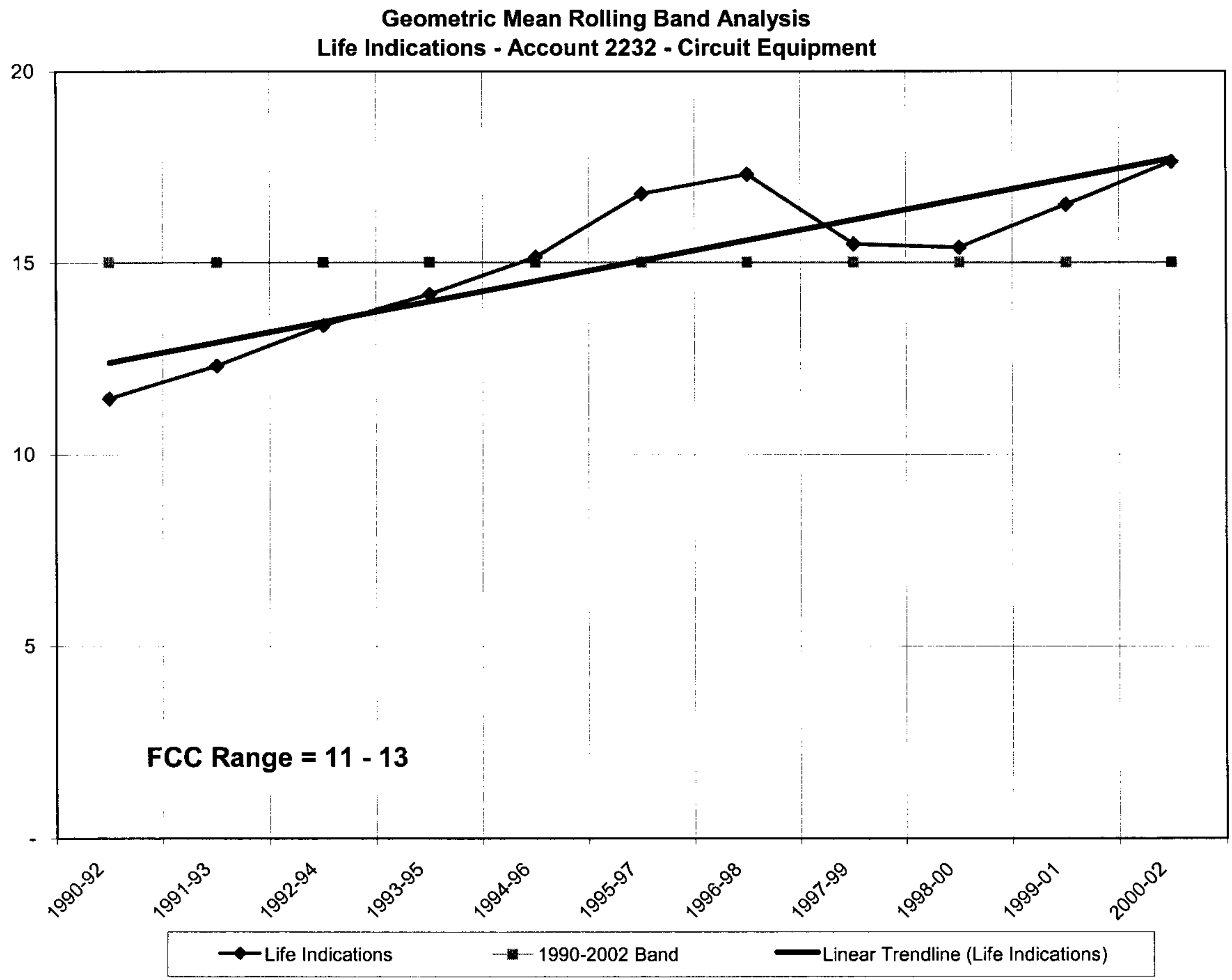
BellSouth Corporation
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2232 - Circuit Equipment
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	5,375,135	5,555,186	732,149	372,047	0.13180	0.06697	10.64							
1991	5,735,237	5,911,828	747,885	394,828	0.12651	0.06679	10.88							
1992	6,088,419	6,326,240	777,254	301,612	0.12286	0.04768	13.07	1990-92	17,793,254	2,257,288	1,068,487	0.12686	0.06005	11.46
1993	6,564,061	6,817,604	827,851	320,765	0.12143	0.04705	13.23	1991-93	19,055,672	2,352,990	1,017,205	0.12348	0.05338	12.32
1994	7,071,147	7,370,132	911,862	313,892	0.12372	0.04259	13.78	1992-94	20,513,976	2,516,967	936,269	0.12270	0.04564	13.36
1995	7,669,117	7,985,023	916,967	285,155	0.11484	0.03571	15.62	1993-95	22,172,759	2,656,680	919,812	0.11982	0.04148	14.18
1996	8,300,929	8,739,123	1,132,051	255,664	0.12954	0.02926	16.24	1994-96	24,094,278	2,960,880	854,711	0.12289	0.03547	15.15
1997	9,177,316	9,620,919	1,121,819	234,614	0.11660	0.02439	18.75	1995-97	26,345,064	3,170,837	775,433	0.12036	0.02943	16.80
1998	10,064,521	10,528,893	1,236,341	307,597	0.11742	0.02921	17.07	1996-98	28,888,934	3,490,211	797,875	0.12081	0.02762	17.31
1999	10,993,265	11,460,830	1,478,090	542,961	0.12897	0.04738	12.79	1997-99	31,610,641	3,836,250	1,085,172	0.12136	0.03433	15.49
2000	11,928,394	12,716,810	1,841,173	264,341	0.14478	0.02079	18.23	1998-00	34,706,533	4,555,604	1,114,899	0.13126	0.03212	15.40
2001	13,505,226	14,298,811	1,832,692	245,522	0.12817	0.01717	21.32	1999-01	38,476,451	5,151,955	1,052,824	0.13390	0.02736	16.52
2002	15,092,396	15,422,246	1,310,982	651,283	0.08501	0.04223	16.69	2000-02	42,437,867	4,984,847	1,161,146	0.11746	0.02736	17.64
1990-2002	117,565,163	122,753,643	14,867,116	4,490,281	0.12111	0.03658	15.02							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: BellSouth
Account: 2232 - Circuit Equipment



BellSouth Corporation
Telephone Plant in Service
Geometric Mean Turnover Analysis

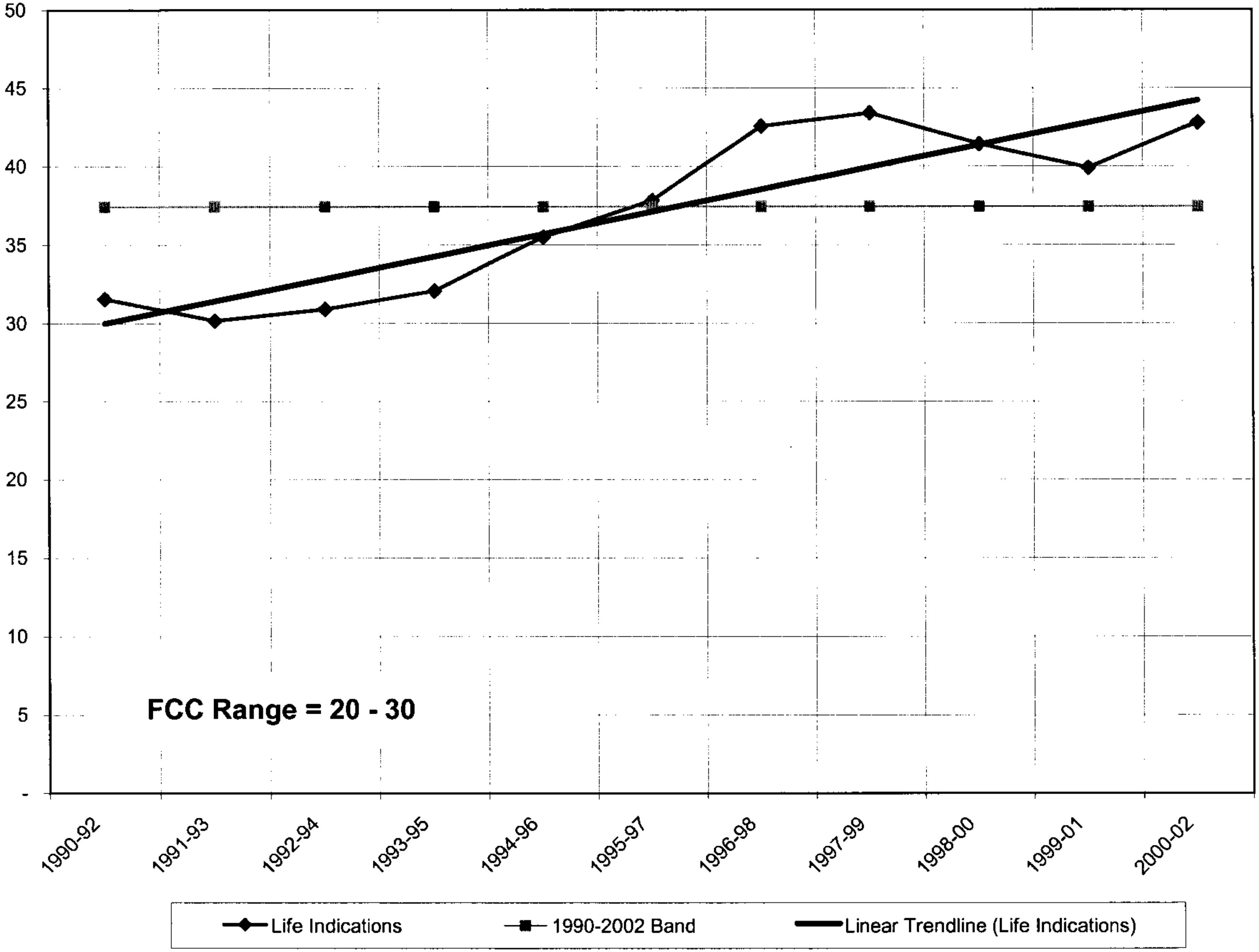
Account 2421 - Aerial Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	3,411,366	3,502,744	234,861	52,105	0.06705	0.01488	31.66							
1991	3,594,122	3,685,492	234,996	52,187	0.06376	0.01416	33.28							
1992	3,776,861	3,875,506	261,212	63,923	0.06740	0.01649	29.99	1990-92	11,063,741	731,069	168,215	0.06608	0.01520	31.55
1993	3,974,150	4,083,592	291,998	73,115	0.07151	0.01790	27.95	1991-93	11,644,589	788,206	189,225	0.06769	0.01625	30.15
1994	4,193,033	4,275,141	227,958	63,743	0.05332	0.01491	35.47	1992-94	12,234,238	781,168	200,781	0.06385	0.01641	30.89
1995	4,357,248	4,461,920	273,986	64,643	0.06141	0.01449	33.53	1993-95	12,820,652	793,942	201,501	0.06193	0.01572	32.05
1996	4,566,591	4,670,321	265,158	57,698	0.05678	0.01235	37.76	1994-96	13,407,381	767,102	186,084	0.05721	0.01388	35.49
1997	4,774,051	4,867,999	241,248	53,353	0.04956	0.01096	42.91	1995-97	14,000,239	780,392	175,694	0.05574	0.01255	37.81
1998	4,961,946	5,060,590	243,269	45,982	0.04807	0.00909	47.85	1996-98	14,598,909	749,675	157,033	0.05135	0.01076	42.55
1999	5,159,233	5,254,748	256,821	65,792	0.04887	0.01252	40.43	1997-99	15,183,336	741,338	165,127	0.04883	0.01088	43.40
2000	5,350,262	5,476,140	317,832	66,077	0.05804	0.01207	37.79	1998-00	15,791,477	817,922	177,851	0.05180	0.01126	41.40
2001	5,602,017	5,691,018	251,288	73,286	0.04416	0.01288	41.94	1999-01	16,421,905	825,941	205,155	0.05030	0.01249	39.89
2002	5,780,019	5,853,094	210,061	63,911	0.03589	0.01092	50.52	2000-02	17,020,252	779,181	203,274	0.04578	0.01194	42.77
1990-2002	59,500,899	60,758,301	3,310,688	795,815	0.05449	0.01310	37.43							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: BellSouth
Account: 2421 - Aerial Cable

Geometric Mean Rolling Band Analysis
Life Indications - Account 2421 - Aerial Cable



BellSouth Corporation
Telephone Plant in Service
Geometric Mean Turnover Analysis

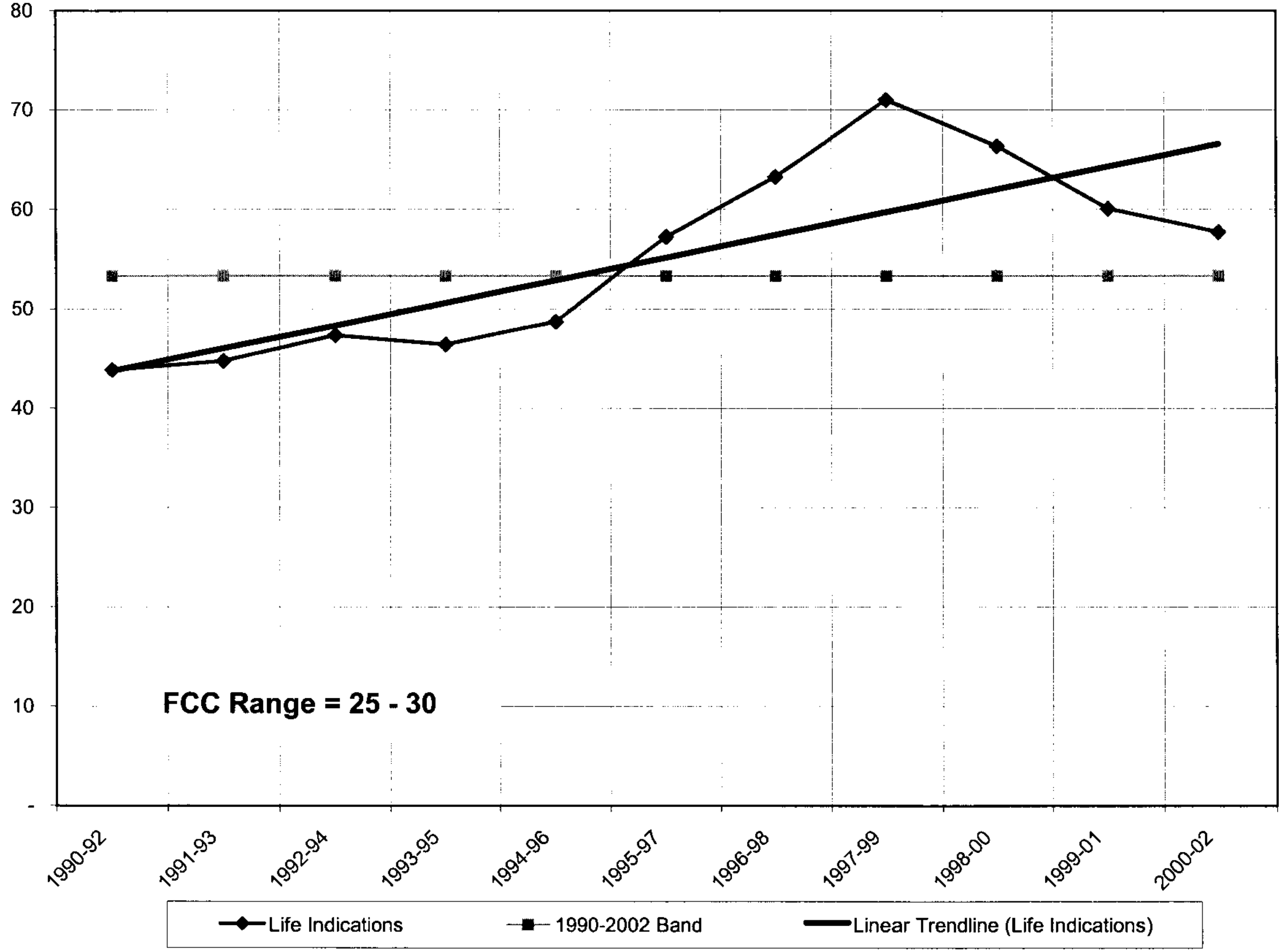
Account 2422 - Underground Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	2,585,843	2,634,287	124,785	27,898	0.04737	0.01059	44.65							
1991	2,682,730	2,709,260	104,067	50,937	0.03841	0.01880	37.21							
1992	2,735,789	2,769,711	94,797	26,954	0.03423	0.00973	54.79	1990-92	8,113,257	323,649	105,789	0.03989	0.01304	43.85
1993	2,803,632	2,828,220	90,351	41,176	0.03195	0.01456	46.37	1991-93	8,307,190	289,215	119,067	0.03482	0.01433	44.77
1994	2,852,807	2,872,553	88,374	48,882	0.03076	0.01702	43.71	1992-94	8,470,483	273,522	117,012	0.03229	0.01381	47.35
1995	2,892,299	2,926,358	101,408	33,290	0.03465	0.01138	50.37	1993-95	8,627,131	280,133	123,348	0.03247	0.01430	46.41
1996	2,960,417	2,998,469	104,654	28,551	0.03490	0.00952	54.85	1994-96	8,797,380	294,436	110,723	0.03347	0.01259	48.72
1997	3,036,520	3,061,924	76,282	25,474	0.02491	0.00832	69.46	1995-97	8,986,751	282,344	87,315	0.03142	0.00972	57.24
1998	3,087,328	3,119,081	87,876	24,371	0.02817	0.00781	67.40	1996-98	9,179,473	268,812	78,396	0.02928	0.00854	63.23
1999	3,150,833	3,176,137	73,842	23,235	0.02325	0.00732	76.68	1997-99	9,357,141	238,000	73,080	0.02544	0.00781	70.95
2000	3,201,440	3,240,273	107,028	29,363	0.03303	0.00906	57.80	1998-00	9,535,490	268,746	76,969	0.02818	0.00807	66.30
2001	3,279,105	3,326,591	127,676	32,705	0.03838	0.00983	51.48	1999-01	9,743,000	308,546	85,303	0.03167	0.00876	60.06
2002	3,374,076	3,396,224	77,683	33,387	0.02287	0.00983	66.69	2000-02	9,963,087	312,387	95,455	0.03135	0.00958	57.70
1990-2002	38,642,819	39,059,084	1,258,823	426,223	0.03223	0.01091	53.32							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: BellSouth
Account: 2422 - Underground Cable

Geometric Mean Rolling Band Analysis
Life Indications - Account 2422 - Underground Cable



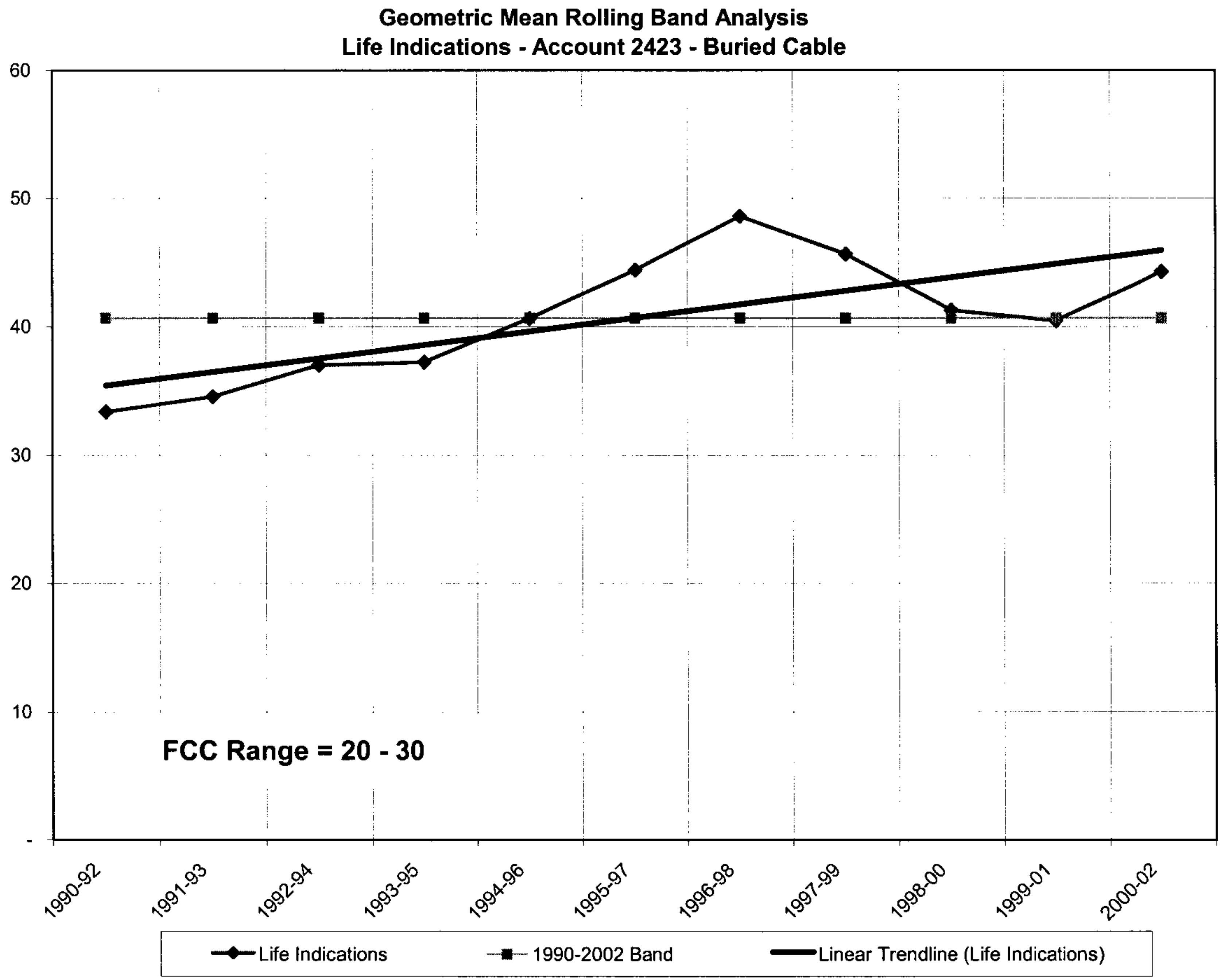
BellSouth Corporation
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2423 - Buried Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	6,850,889	7,059,436	514,325	97,231	0.07286	0.01377	31.57							
1991	7,267,983	7,452,853	488,972	119,304	0.06561	0.01601	30.86							
1992	7,637,722	7,836,193	482,253	85,311	0.06154	0.01089	38.63	1990-92	22,348,482	1,485,550	301,846	0.06647	0.01351	33.37
1993	8,034,664	8,280,302	585,600	94,324	0.07072	0.01139	35.23	1991-93	23,569,348	1,556,825	298,939	0.06605	0.01268	34.55
1994	8,525,940	8,719,464	495,485	108,438	0.05683	0.01244	37.62	1992-94	24,835,959	1,563,338	288,073	0.06295	0.01160	37.01
1995	8,912,987	9,121,907	522,022	104,182	0.05723	0.01142	39.12	1993-95	26,121,673	1,603,107	306,944	0.06137	0.01175	37.24
1996	9,330,827	9,539,447	503,273	86,034	0.05276	0.00902	45.84	1994-96	27,380,817	1,520,780	298,654	0.05554	0.01091	40.63
1997	9,748,066	9,989,947	556,899	73,137	0.05575	0.00732	49.50	1995-97	28,651,301	1,582,194	263,353	0.05522	0.00919	44.39
1998	10,231,828	10,490,734	589,988	72,176	0.05624	0.00688	50.84	1996-98	30,020,128	1,650,160	231,347	0.05497	0.00771	48.59
1999	10,749,640	11,008,648	639,185	121,170	0.05806	0.01101	39.56	1997-99	31,489,329	1,786,072	266,483	0.05672	0.00846	45.64
2000	11,267,655	11,635,510	852,136	116,427	0.07324	0.01001	36.94	1998-00	33,134,891	2,081,309	309,773	0.06281	0.00935	41.27
2001	12,003,364	12,268,342	641,571	111,615	0.05229	0.00910	45.85	1999-01	34,912,499	2,132,892	349,212	0.06109	0.01000	40.45
2002	12,533,320	12,747,430	537,892	109,672	0.04220	0.00860	52.48	2000-02	36,651,282	2,031,599	337,714	0.05543	0.00921	44.25
1990-2002	123,094,885	126,150,211	7,409,601	1,299,021	0.05874	0.01030	40.66							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: BellSouth
Account: 2423 - Buried Cable



Qwest Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

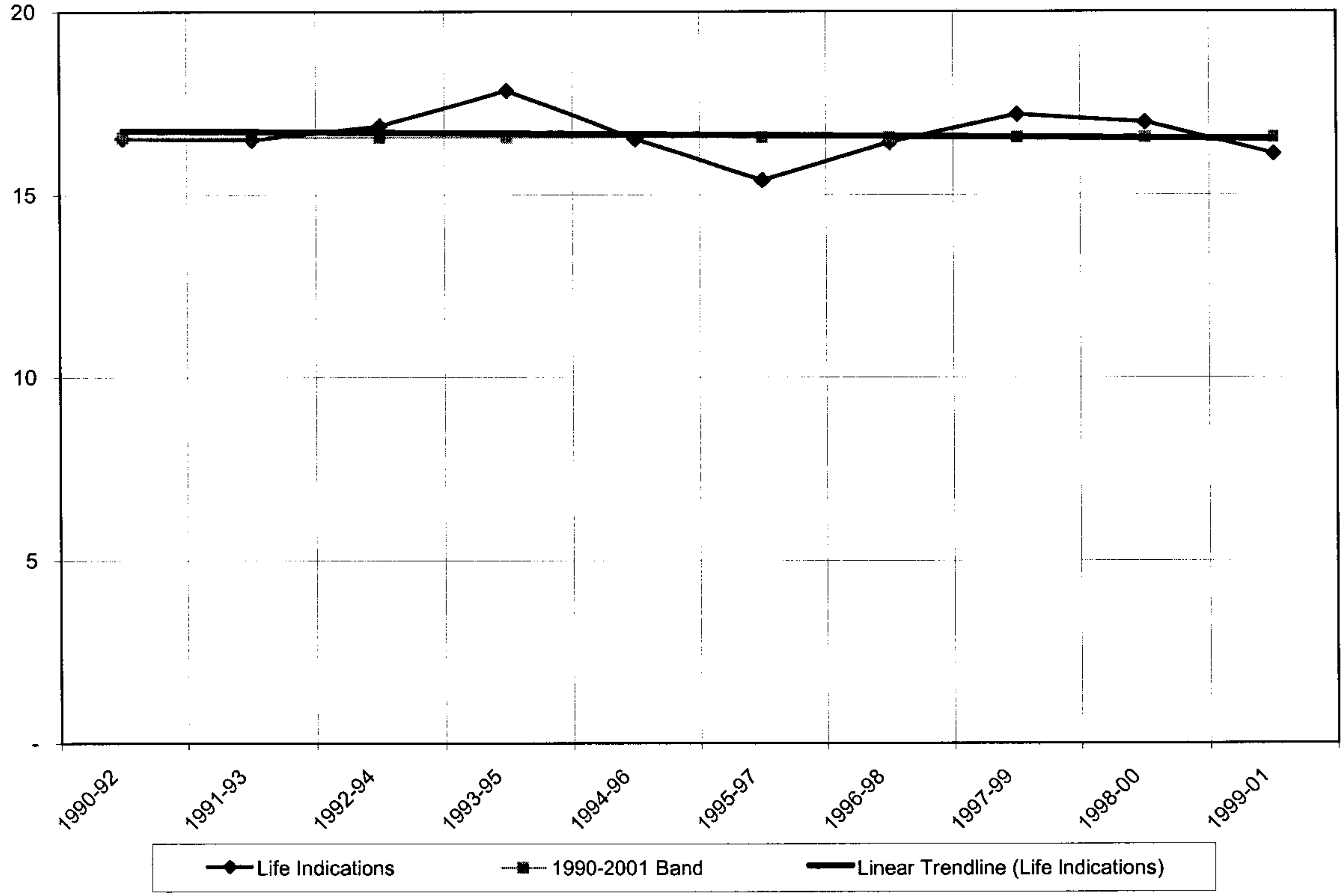
Total Plant in Service
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	22,421,075	22,975,751	1,843,651	734,299	0.08024	0.03196	19.75							
1991	23,530,427	24,098,114	2,123,110	987,736	0.08810	0.04099	16.64							
1992	24,665,801	25,231,646	2,410,607	1,278,917	0.09554	0.05069	14.37	1990-92	72,305,511	6,377,368	3,000,952	0.08820	0.04150	16.53
1993	25,797,491	26,538,137	2,308,664	827,372	0.08699	0.03118	19.20	1991-93	75,867,897	6,842,381	3,094,025	0.09019	0.04078	16.49
1994	27,278,783	27,931,565	2,356,645	1,051,081	0.08437	0.03763	17.75	1992-94	79,701,348	7,075,916	3,157,370	0.08878	0.03962	16.86
1995	28,584,347	29,280,624	2,568,087	1,175,533	0.08771	0.04015	16.85	1993-95	83,750,326	7,233,396	3,053,986	0.08637	0.03647	17.82
1996	29,976,901	30,791,016	2,993,254	1,365,025	0.09721	0.04433	15.23	1994-96	88,003,205	7,917,986	3,591,639	0.08997	0.04081	16.50
1997	31,605,130	31,966,753	2,578,150	1,854,904	0.08065	0.05803	14.62	1995-97	92,038,393	8,139,491	4,395,462	0.08844	0.04776	15.39
1998	32,328,376	32,976,834	2,364,580	1,067,665	0.07170	0.03238	20.75	1996-98	95,734,602	7,935,984	4,287,594	0.08290	0.04479	16.41
1999	33,625,291	34,452,588	2,967,409	1,312,815	0.08613	0.03810	17.46	1997-99	99,396,175	7,910,139	4,235,384	0.07958	0.04261	17.17
2000	35,279,885	36,944,639	4,654,574	1,409,489	0.12599	0.03815	14.42	1998-00	104,374,061	9,986,563	3,789,969	0.09568	0.03631	16.97
2001	38,609,393	40,258,270	4,533,661	1,235,907	0.11261	0.03070	17.01	1999-01	111,655,497	12,155,644	3,958,211	0.10887	0.03545	16.10
1990-2001	353,702,900	363,445,936	33,702,392	14,300,743	0.09273	0.03935	16.56							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2001
Note: Excludes Customer Premises Wiring

Company: Qwest
Account: Total Plant in Service

Geometric Mean Rolling Band Analysis
Life Indications - Total Plant in Service



Qwest Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

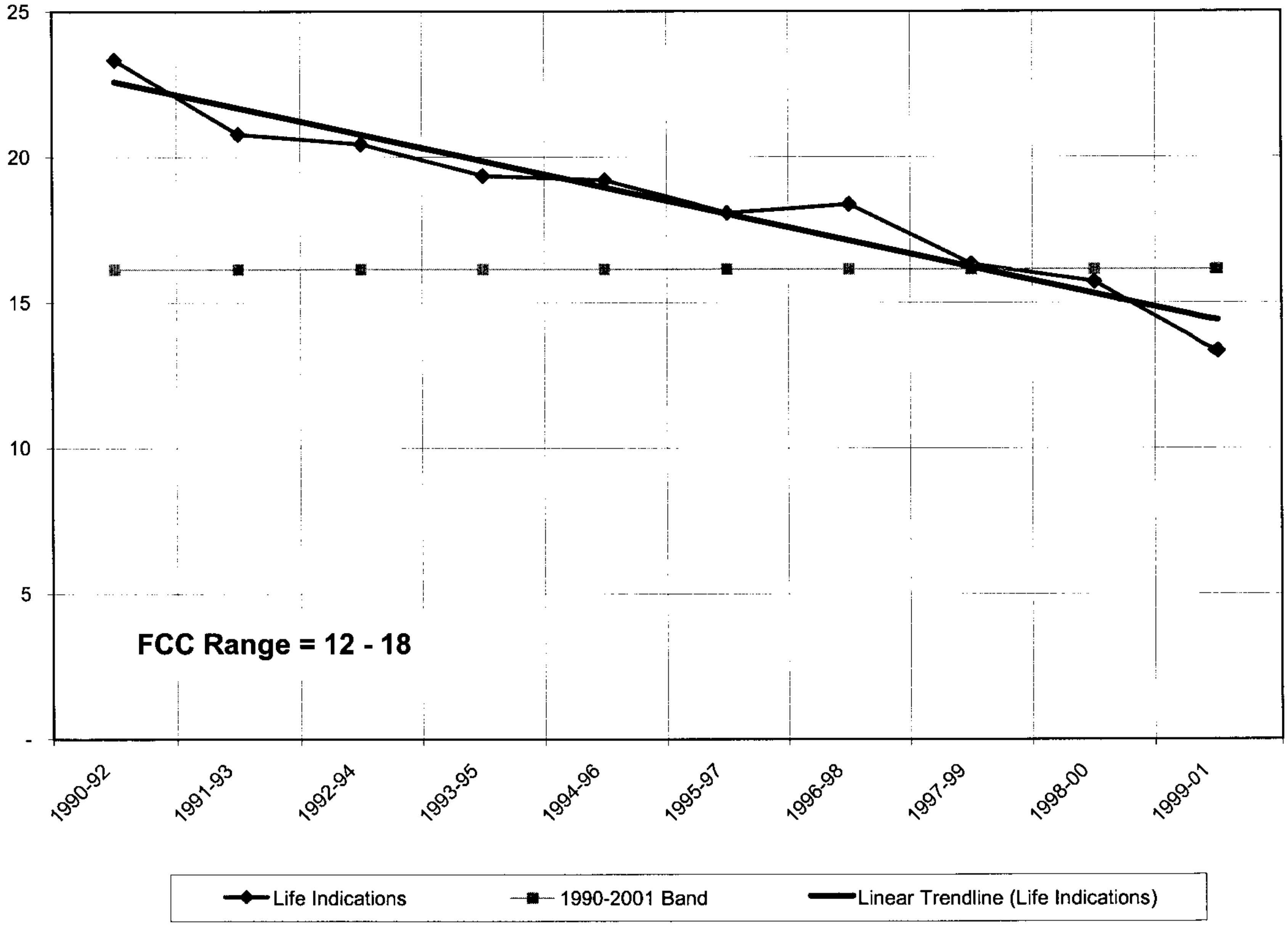
Account 2212 - Digital Electronic Switching
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	1,579,836	1,751,227	360,860	18,079	0.20606	0.01032	21.68							
1991	1,922,617	2,115,163	410,514	25,423	0.19408	0.01202	20.70							
1992	2,307,708	2,535,228	472,086	17,047	0.18621	0.00672	28.26	1990-92	6,401,617	1,243,460	60,549	0.19424	0.00946	23.33
1993	2,762,747	3,016,593	559,664	51,973	0.18553	0.01723	17.69	1991-93	7,666,983	1,442,264	94,443	0.18811	0.01232	20.77
1994	3,270,438	3,474,682	469,382	60,894	0.13509	0.01753	20.55	1992-94	9,026,502	1,501,132	129,914	0.16630	0.01439	20.44
1995	3,678,926	3,868,690	459,310	79,782	0.11872	0.02062	20.21	1993-95	10,359,965	1,488,356	192,649	0.14366	0.01860	19.35
1996	4,058,454	4,254,965	506,544	113,523	0.11905	0.02668	17.74	1994-96	11,598,337	1,435,236	254,199	0.12374	0.02192	19.20
1997	4,451,475	4,634,587	510,628	144,404	0.11018	0.03116	17.07	1995-97	12,758,242	1,476,482	337,709	0.11573	0.02647	18.07
1998	4,817,699	5,009,970	503,212	118,671	0.10044	0.02369	20.50	1996-98	13,899,521	1,520,384	376,598	0.10938	0.02709	18.37
1999	5,202,240	5,354,862	574,110	268,867	0.10721	0.05021	13.63	1997-99	14,999,418	1,587,950	531,942	0.10587	0.03546	16.32
2000	5,507,483	6,068,198	1,201,903	91,933	0.19807	0.01515	18.26	1998-00	16,433,029	2,279,225	479,471	0.13870	0.02918	15.72
2001	6,628,913	6,996,580	1,049,451	314,117	0.14999	0.04490	12.19	1999-01	18,419,640	2,825,464	674,917	0.15339	0.03664	13.34
1990-2001	46,188,536	49,080,742	7,077,664	1,304,713	0.14420	0.02658	16.15							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2001

Company: Qwest
Account: 2212 - Digital Electronic Switching

Geometric Mean Rolling Band Analysis
Life Indications - Account 2212 - Digital Electronic Switching



Qwest Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

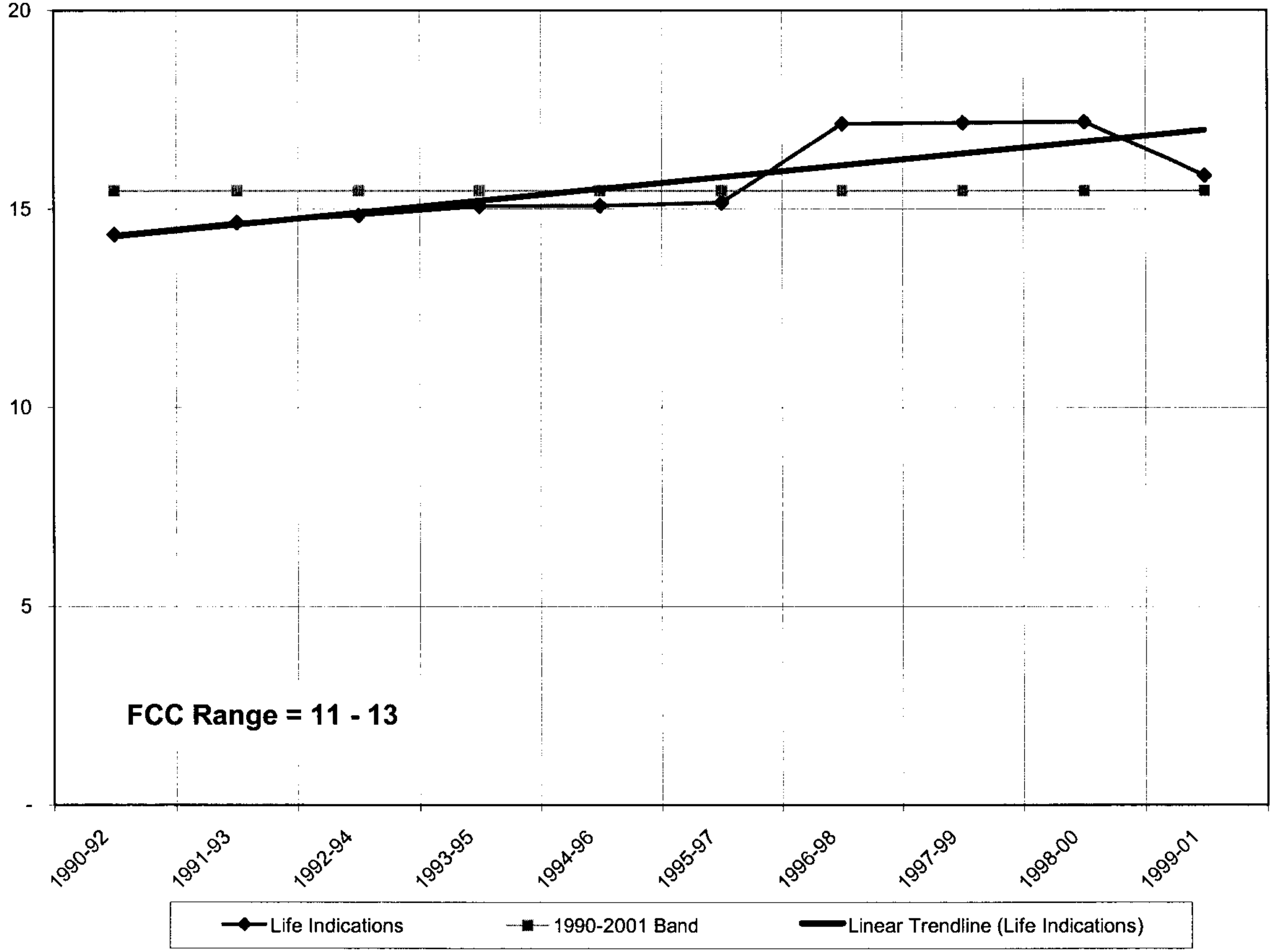
Account 2232 - Circuit Equipment
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	3,752,744	3,855,542	385,118	179,524	0.09989	0.04656	14.66							
1991	3,958,339	4,069,477	425,342	203,066	0.10452	0.04990	13.85							
1992	4,180,615	4,313,714	457,113	190,916	0.10597	0.04426	14.60	1990-92	12,238,732	1,267,573	573,506	0.10357	0.04686	14.35
1993	4,446,812	4,552,649	416,992	205,319	0.09159	0.04510	15.56	1991-93	12,935,839	1,299,447	599,301	0.10045	0.04633	14.66
1994	4,658,485	4,836,616	556,661	200,399	0.11509	0.04143	14.48	1992-94	13,702,978	1,430,766	596,634	0.10441	0.04354	14.83
1995	5,014,747	5,261,182	664,553	171,684	0.12631	0.03263	15.58	1993-95	14,650,446	1,638,206	577,402	0.11182	0.03941	15.06
1996	5,507,616	5,804,266	777,831	184,532	0.13401	0.03179	15.32	1994-96	15,902,063	1,999,045	556,615	0.12571	0.03500	15.08
1997	6,100,915	6,208,945	521,486	305,427	0.08399	0.04919	15.56	1995-97	17,274,392	1,963,870	661,643	0.11369	0.03830	15.15
1998	6,316,974	6,605,979	683,670	105,660	0.10349	0.01599	24.58	1996-98	18,619,189	1,982,987	595,619	0.10650	0.03199	17.13
1999	6,894,984	7,193,020	847,633	251,562	0.11784	0.03497	15.58	1997-99	20,007,943	2,052,789	662,649	0.10260	0.03312	17.15
2000	7,491,055	8,059,337	1,333,094	208,199	0.16541	0.02583	15.30	1998-00	21,858,336	2,864,397	565,421	0.13104	0.02587	17.18
2001	8,627,619	9,274,890	1,488,924	194,383	0.16053	0.02096	17.24	1999-01	24,527,246	3,669,651	654,144	0.14962	0.02667	15.83
1990-2001	66,950,905	70,035,613	8,558,417	2,400,671	0.12220	0.03428	15.45							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2001

Company: Qwest
Account: 2232 - Circuit Equipment

Geometric Mean Rolling Band Analysis
Life Indications - Account 2232 - Circuit Equipment



Qwest Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

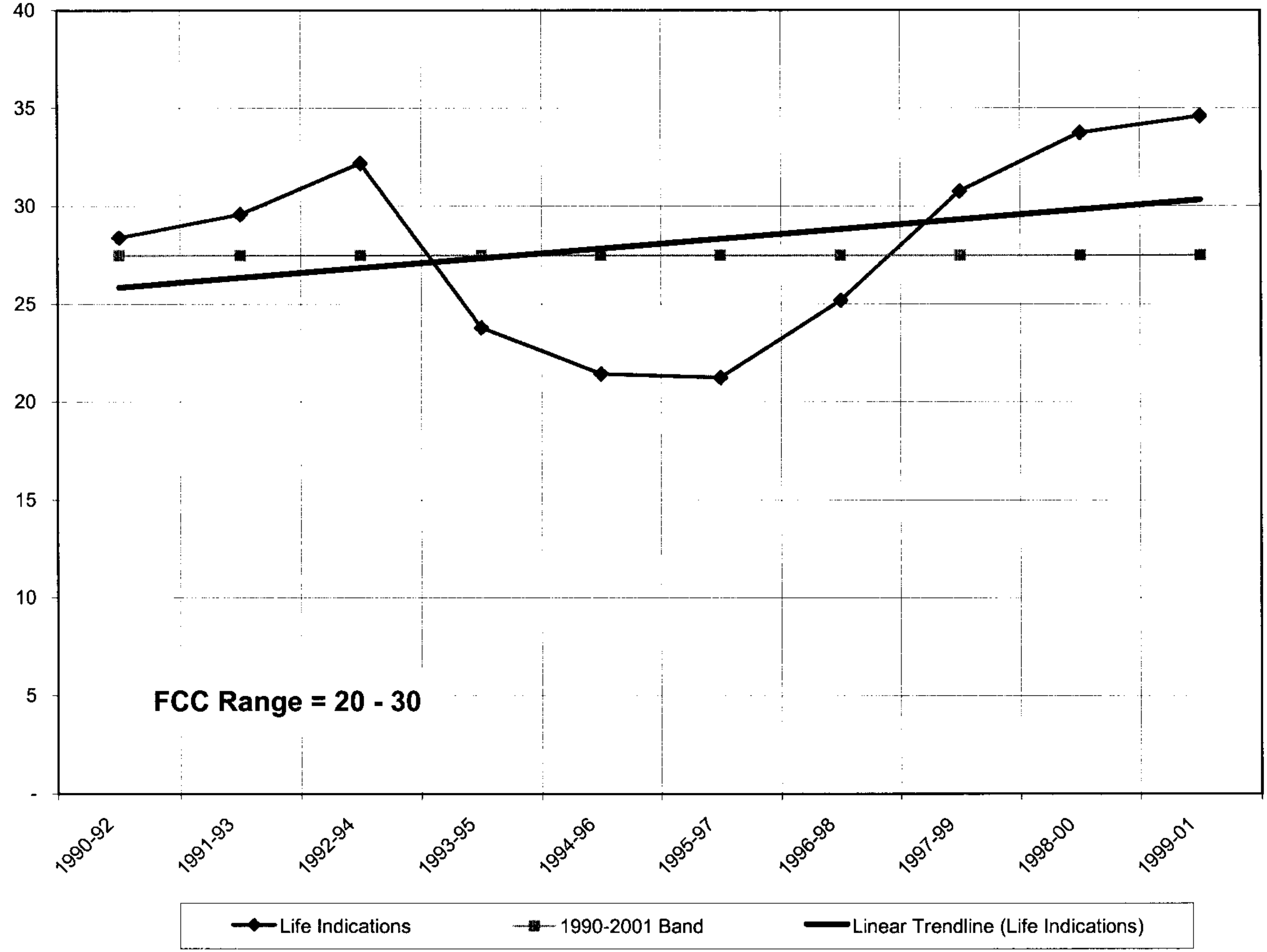
Account 2421 - Aerial Cable
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	720,779	733,991	43,658	17,234	0.05948	0.02348	26.76							
1991	747,202	755,717	45,269	28,240	0.05990	0.03737	21.14							
1992	764,232	787,719	48,384	1,411	0.06142	0.00179	95.34	1990-92	2,277,426	137,311	46,885	0.06029	0.02059	28.38
1993	811,205	828,569	49,915	15,188	0.06024	0.01833	30.09	1991-93	2,372,005	143,568	44,839	0.06053	0.01890	29.56
1994	845,933	861,102	52,953	22,614	0.06149	0.02626	24.88	1992-94	2,477,390	151,252	39,213	0.06105	0.01583	32.17
1995	876,271	891,988	64,204	32,770	0.07198	0.03674	19.45	1993-95	2,581,659	167,072	70,572	0.06471	0.02734	23.78
1996	907,705	938,949	85,238	22,750	0.09078	0.02423	21.32	1994-96	2,692,039	202,395	78,134	0.07518	0.02902	21.41
1997	970,193	996,056	75,201	23,476	0.07550	0.02357	23.71	1995-97	2,826,993	224,643	78,996	0.07946	0.02794	21.22
1998	1,021,918	1,043,103	59,691	17,322	0.05722	0.01661	32.44	1996-98	2,978,107	220,130	63,548	0.07392	0.02134	25.18
1999	1,064,287	1,093,425	68,483	10,207	0.06263	0.00933	41.36	1997-99	3,132,583	203,375	51,005	0.06492	0.01628	30.76
2000	1,122,563	1,158,127	87,811	16,683	0.07582	0.01441	30.26	1998-00	3,294,655	215,985	44,212	0.06556	0.01342	33.72
2001	1,193,691	1,219,417	69,254	17,803	0.05679	0.01460	34.73	1999-01	3,470,969	225,548	44,693	0.06498	0.01288	34.57
1990-2001	11,045,979	11,308,161	750,061	225,698	0.06633	0.01996	27.48							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2001

Company: Qwest
Account: 2421 - Aerial Cable

Geometric Mean Rolling Band Analysis
Life Indications - Account 2421 - Aerial Cable



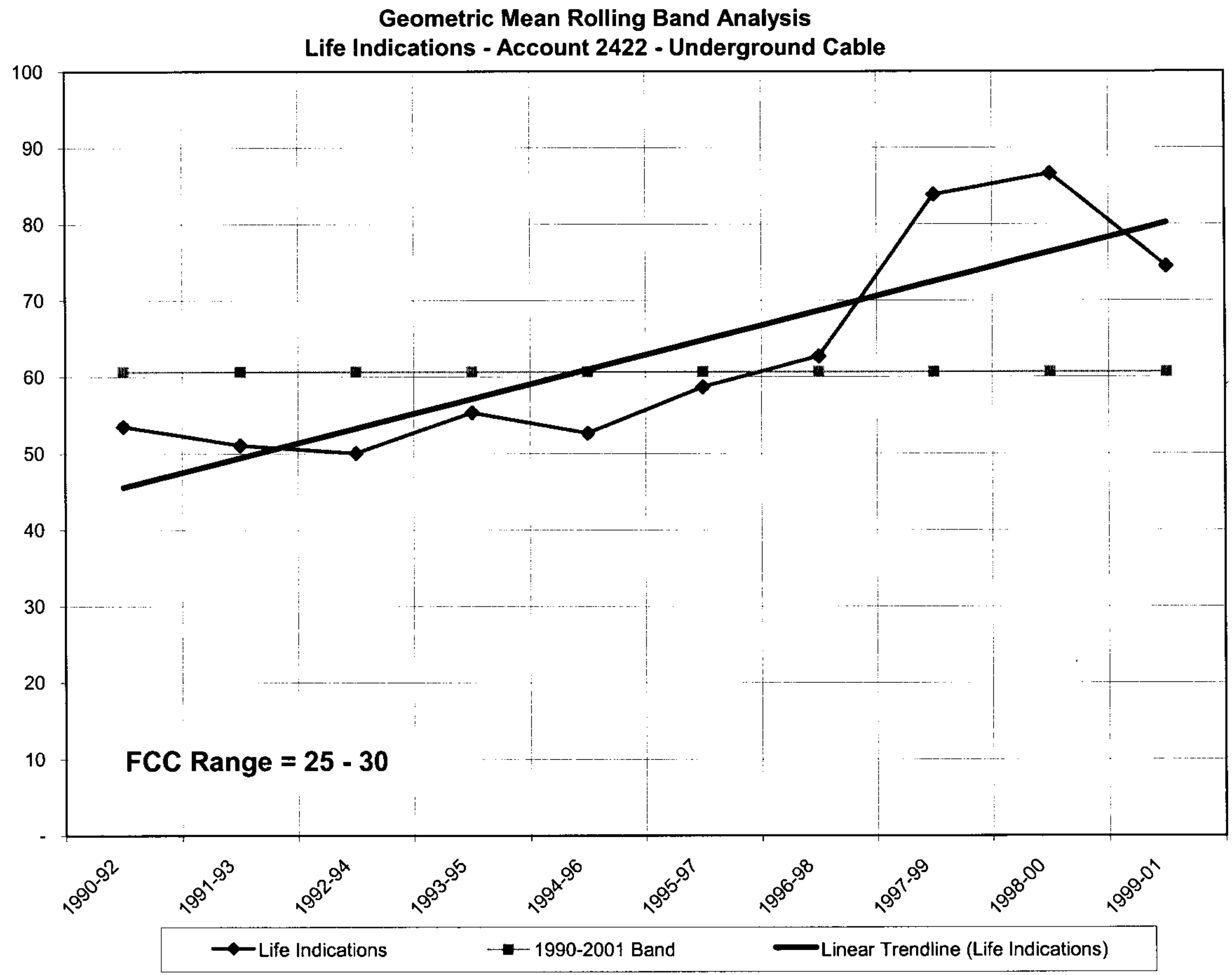
Qwest Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2422 - Underground Cable
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	1,811,527	1,849,440	86,926	11,100	0.04700	0.00600	59.54							
1991	1,887,352	1,928,144	96,606	15,023	0.05010	0.00779	50.61							
1992	1,968,935	2,030,341	133,830	11,019	0.06592	0.00543	52.87	1990-92	5,807,924	317,362	37,142	0.05464	0.00640	53.49
1993	2,091,746	2,143,045	117,619	15,021	0.05488	0.00701	50.99	1991-93	6,101,529	348,055	41,063	0.05704	0.00673	51.04
1994	2,194,343	2,234,459	100,798	20,568	0.04511	0.00920	49.07	1992-94	6,407,844	352,247	46,608	0.05497	0.00727	50.01
1995	2,274,574	2,316,910	95,738	11,066	0.04132	0.00478	71.18	1993-95	6,694,413	314,155	46,655	0.04693	0.00697	55.30
1996	2,359,246	2,440,020	177,181	15,634	0.07261	0.00641	46.36	1994-96	6,991,388	373,717	47,268	0.05345	0.00676	52.60
1997	2,520,793	2,578,708	128,111	12,281	0.04968	0.00476	65.01	1995-97	7,335,638	401,030	38,981	0.05467	0.00531	58.67
1998	2,636,623	2,683,060	102,032	9,159	0.03803	0.00341	87.77	1996-98	7,701,787	407,324	37,074	0.05289	0.00481	62.67
1999	2,729,496	2,778,608	104,284	6,061	0.03753	0.00218	110.52	1997-99	8,040,375	334,427	27,501	0.04159	0.00342	83.84
2000	2,827,719	2,900,898	156,823	10,463	0.05406	0.00361	71.61	1998-00	8,362,565	363,139	25,683	0.04342	0.00307	86.59
2001	2,974,077	3,082,892	229,350	11,720	0.07439	0.00380	59.46	1999-01	8,762,398	490,457	28,244	0.05597	0.00322	74.45
1990-2001	28,276,431	28,966,521	1,529,298	149,115	0.05280	0.00515	60.66							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2001

Company: Qwest
Account: 2422 - Underground Cable



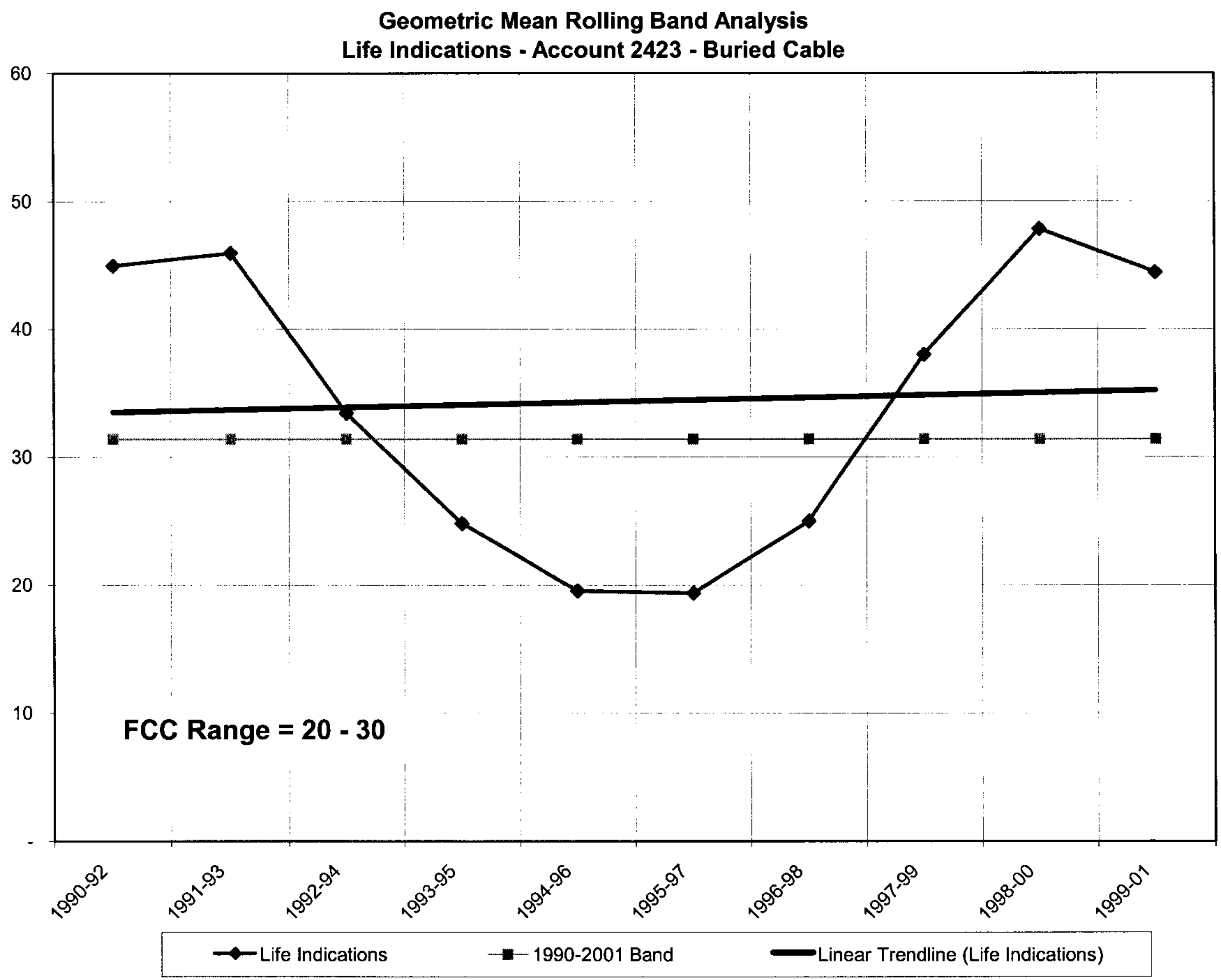
Qwest Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2423 - Buried Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	5,166,120	5,289,277	293,726	47,414	0.05553	0.00896	44.82							
1991	5,412,433	5,559,635	332,904	38,500	0.05988	0.00692	49.11							
1992	5,706,836	5,878,224	392,694	49,918	0.06680	0.00849	41.98	1990-92	16,727,135	1,019,324	135,832	0.06094	0.00812	44.95
1993	6,049,612	6,217,896	381,506	44,936	0.06136	0.00723	47.49	1991-93	17,655,755	1,107,104	133,354	0.06270	0.00755	45.95
1994	6,386,180	6,544,105	471,102	155,254	0.07199	0.02372	24.20	1992-94	18,640,225	1,245,302	250,108	0.06681	0.01342	33.40
1995	6,702,030	6,835,307	520,379	253,826	0.07613	0.03713	18.81	1993-95	19,597,308	1,372,987	454,016	0.07006	0.02317	24.82
1996	6,968,583	7,210,379	722,648	239,056	0.10022	0.03315	17.35	1994-96	20,589,791	1,714,129	648,136	0.08325	0.03148	19.53
1997	7,452,175	7,647,894	584,619	193,182	0.07644	0.02526	22.76	1995-97	21,693,579	1,827,646	686,064	0.08425	0.03163	19.37
1998	7,843,612	8,020,246	409,251	55,983	0.05103	0.00698	52.99	1996-98	22,878,519	1,716,518	488,221	0.07503	0.02134	24.99
1999	8,196,880	8,410,378	455,197	28,201	0.05412	0.00335	74.23	1997-99	24,078,518	1,449,067	277,366	0.06018	0.01152	37.98
2000	8,623,876	8,906,072	609,303	106,205	0.06841	0.01193	35.01	1998-00	25,336,696	1,473,751	190,389	0.05817	0.00751	47.83
2001	9,188,268	9,474,039	649,390	77,848	0.06854	0.00822	42.14	1999-01	26,790,489	1,713,890	212,254	0.06397	0.00792	44.42
1990-2001	83,696,605	85,993,450	5,822,719	1,290,323	0.06771	0.01500	31.37							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2001

Company: Qwest
Account: 2423 - Buried Cable



SBC Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

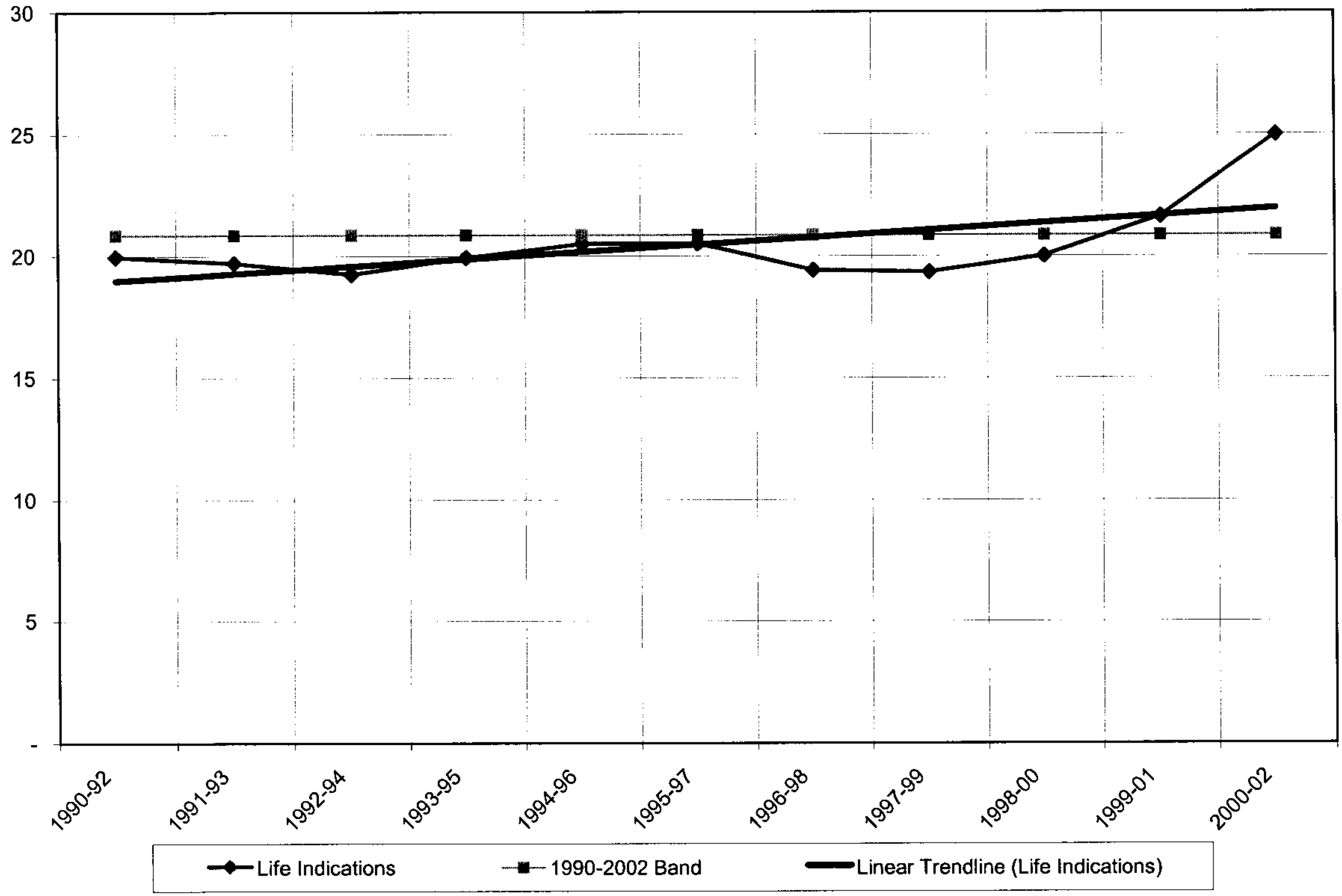
Total Plant in Service
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	71,116,444	72,435,320	5,264,521	2,626,771	0.07268	0.03626	19.48							
1991	73,754,195	75,130,295	5,366,114	2,613,915	0.07142	0.03479	20.06							
1992	76,506,394	77,864,054	5,469,453	2,680,934	0.07024	0.03443	20.33	1990-92	225,429,668	16,100,088	7,921,620	0.07142	0.03514	19.96
1993	79,221,713	80,272,658	5,423,098	3,321,209	0.06756	0.04137	18.91	1991-93	233,267,006	16,258,665	8,616,058	0.06970	0.03694	19.71
1994	81,323,602	82,013,062	5,106,694	3,727,775	0.06227	0.04545	18.80	1992-94	240,149,773	15,999,245	9,729,918	0.06662	0.04052	19.25
1995	82,702,521	83,990,545	5,222,752	2,646,705	0.06218	0.03151	22.59	1993-95	246,276,264	15,752,544	9,695,689	0.06396	0.03937	19.93
1996	85,278,568	87,205,441	6,532,593	2,678,846	0.07491	0.03072	20.85	1994-96	253,209,047	16,862,039	9,053,326	0.06659	0.03575	20.49
1997	89,132,314	91,257,967	7,453,995	3,202,690	0.08168	0.03509	18.68	1995-97	262,453,952	19,209,340	8,528,241	0.07319	0.03249	20.51
1998	93,383,619	95,500,895	7,585,440	3,350,890	0.07943	0.03509	18.94	1996-98	273,964,302	21,572,028	9,232,426	0.07874	0.03370	19.41
1999	97,618,170	99,825,160	7,574,724	3,160,748	0.07588	0.03166	20.40	1997-99	286,584,021	22,614,159	9,714,328	0.07891	0.03390	19.34
2000	102,032,150	105,257,655	9,207,808	2,756,800	0.08748	0.02619	20.89	1998-00	300,583,710	24,367,972	9,268,438	0.08107	0.03083	20.00
2001	108,483,160	112,220,261	9,692,572	2,218,371	0.08637	0.01977	24.20	1999-01	317,303,076	26,475,104	8,135,919	0.08344	0.02564	21.62
2002	115,957,361	118,083,093	6,413,494	2,162,030	0.05431	0.01831	31.71	2000-02	335,561,009	25,313,874	7,137,201	0.07544	0.02127	24.96
1990-2002	1,156,510,211	1,181,056,402	86,313,258	37,147,684	0.07308	0.03145	20.86							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002
Note: Excludes Customer Premises Wiring

Company: SBC
Account: Total Plant in Service

Geometric Mean Rolling Band Analysis
Life Indications - Total Plant in Service



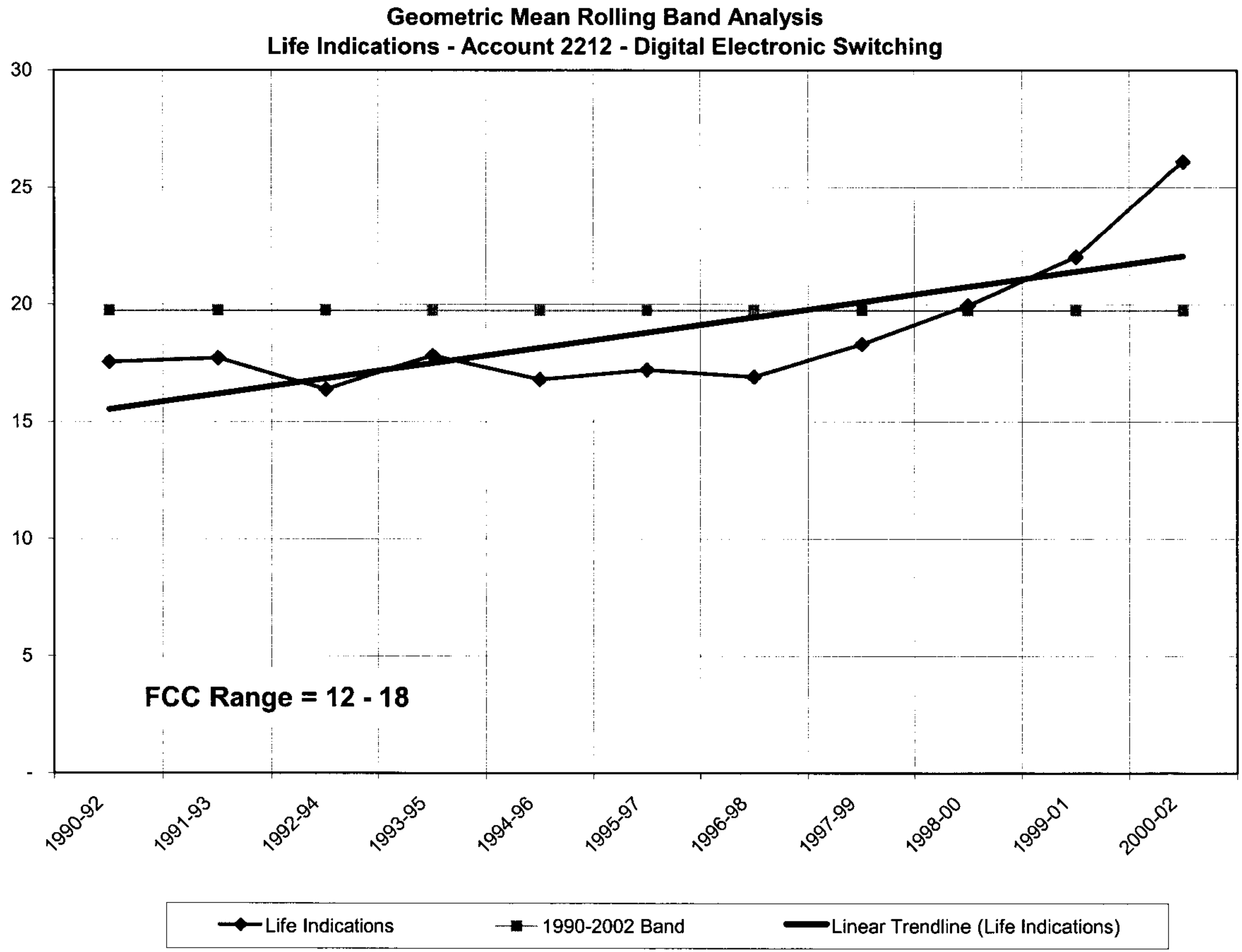
SBC Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2212 - Digital Electronic Switching
($ Thousands)

									3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	5,716,270	6,232,605	1,125,187	92,518	0.18053	0.01484	19.32							
1991	6,748,939	7,249,601	1,132,050	130,726	0.15615	0.01803	18.85							
1992	7,750,263	8,255,749	1,288,964	210,122	0.15613	0.02545	15.86	1990-92	21,737,954	3,546,201	433,366	0.16313	0.01994	17.54
1993	8,761,234	9,296,768	1,263,790	192,724	0.13594	0.02073	18.84	1991-93	24,802,117	3,684,804	533,572	0.14857	0.02151	17.69
1994	9,832,301	10,367,067	1,402,930	333,398	0.13533	0.03216	15.16	1992-94	27,919,583	3,955,684	736,244	0.14168	0.02637	16.36
1995	10,901,833	11,337,855	1,142,572	270,529	0.10077	0.02386	20.39	1993-95	31,001,689	3,809,292	796,651	0.12287	0.02570	17.80
1996	11,773,876	12,393,633	1,625,110	385,597	0.13112	0.03111	15.66	1994-96	34,098,555	4,170,612	989,524	0.12231	0.02902	16.79
1997	13,013,390	13,760,560	1,864,931	370,589	0.13553	0.02693	16.55	1995-97	37,492,048	4,632,613	1,026,715	0.12356	0.02738	17.19
1998	14,507,730	15,304,228	1,944,897	351,901	0.12708	0.02299	18.50	1996-98	41,458,421	5,434,938	1,108,087	0.13109	0.02673	16.89
1999	16,100,726	16,811,362	1,817,033	395,762	0.10808	0.02354	19.82	1997-99	45,876,150	5,626,861	1,118,252	0.12265	0.02438	18.29
2000	17,521,997	18,152,243	1,681,250	420,758	0.09262	0.02318	21.58	1998-00	50,267,833	5,443,180	1,168,421	0.10828	0.02324	19.93
2001	18,782,489	19,383,446	1,584,451	382,537	0.08174	0.01974	24.90	1999-01	54,347,051	5,082,734	1,199,057	0.09352	0.02206	22.01
2002	19,984,403	20,363,671	1,087,239	328,703	0.05339	0.01614	34.06	2000-02	57,899,360	4,352,940	1,131,998	0.07518	0.01955	26.08
1990-2002	161,395,451	168,908,786	18,960,404	3,865,864	0.11225	0.02289	19.73							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: SBC
Account: 2212 - Digital Electronic Switching



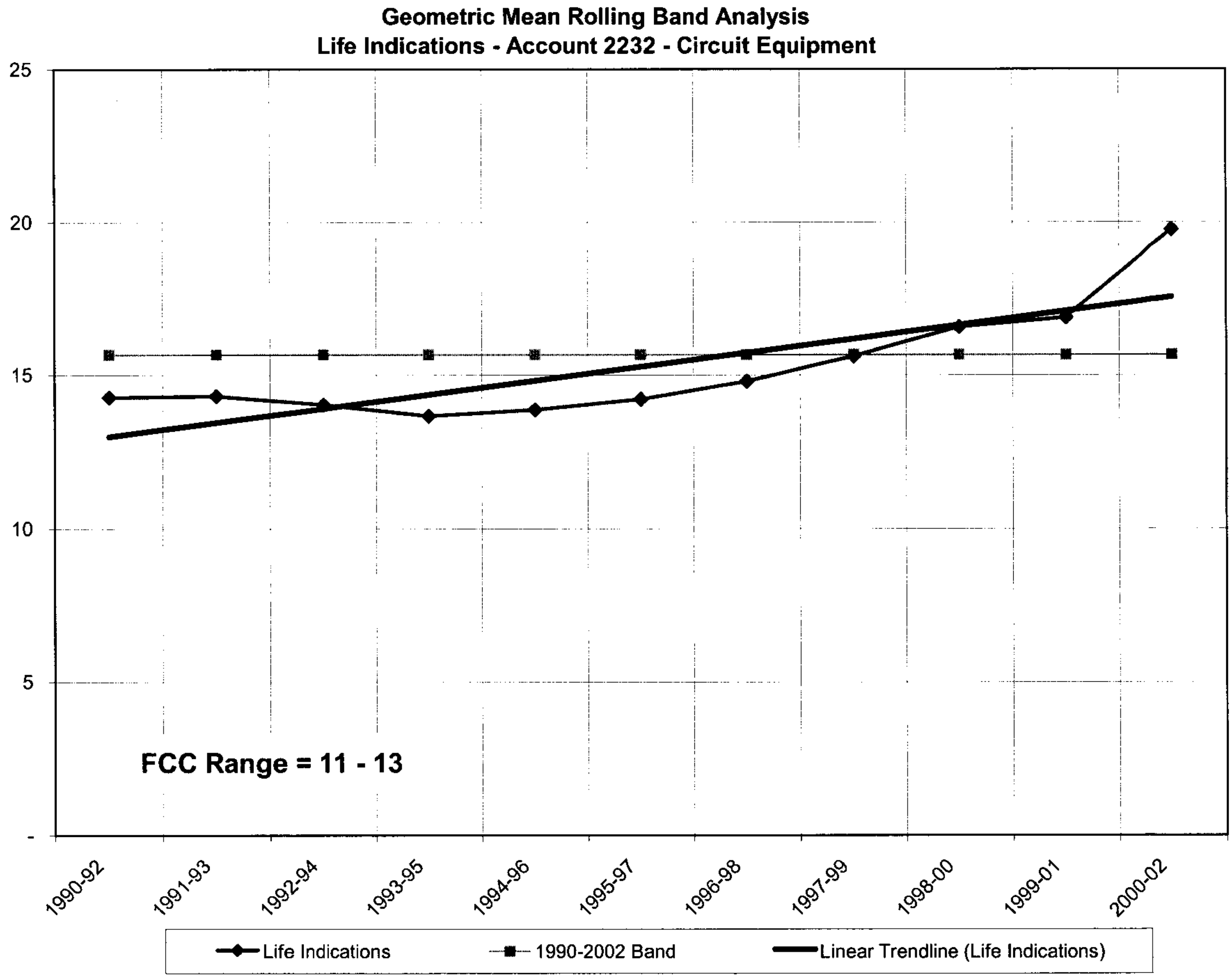
SBC Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2232 - Circuit Equipment
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	10,990,335	11,166,439	1,020,374	668,166	0.09138	0.05984	13.52							
1991	11,342,543	11,638,674	1,177,826	585,566	0.10120	0.05031	14.01							
1992	11,934,804	12,189,444	1,086,337	577,057	0.08912	0.04734	15.40	1990-92	34,994,557	3,284,537	1,830,789	0.09386	0.05232	14.27
1993	12,444,084	12,837,027	1,349,161	655,847	0.10510	0.05109	13.65	1991-93	36,665,144	3,613,324	1,818,470	0.09855	0.04960	14.30
1994	13,229,969	13,531,720	1,361,657	758,155	0.10063	0.05603	13.32	1992-94	38,558,191	3,797,155	1,991,059	0.09848	0.05164	14.02
1995	13,833,471	14,287,571	1,566,202	658,002	0.10962	0.04605	14.07	1993-95	40,656,318	4,277,020	2,072,004	0.10520	0.05096	13.66
1996	14,741,671	15,515,497	2,082,579	534,929	0.13423	0.03448	14.70	1994-96	43,334,788	5,010,438	1,951,086	0.11562	0.04502	13.86
1997	16,289,322	17,096,793	2,265,575	650,633	0.13251	0.03806	14.08	1995-97	46,899,861	5,914,356	1,843,564	0.12611	0.03931	14.20
1998	17,904,264	18,925,289	2,603,275	561,225	0.13756	0.02965	15.66	1996-98	51,537,579	6,951,429	1,746,787	0.13488	0.03389	14.79
1999	19,946,314	20,933,842	2,555,205	580,152	0.12206	0.02771	17.19	1997-99	56,955,924	7,424,055	1,792,010	0.13035	0.03146	15.62
2000	21,921,369	23,473,050	3,625,287	521,926	0.15444	0.02224	17.06	1998-00	63,332,180	8,783,767	1,663,303	0.13869	0.02626	16.57
2001	25,024,730	26,624,583	3,861,478	661,773	0.14503	0.02486	16.66	1999-01	71,031,474	10,041,970	1,763,851	0.14137	0.02483	16.88
2002	28,224,435	28,992,395	2,034,595	498,676	0.07018	0.01720	28.78	2000-02	79,090,027	9,521,360	1,682,375	0.12039	0.02127	19.76
1990-2002	217,827,311	227,212,321	26,589,551	7,912,107	0.11703	0.03482	15.66							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: SBC
Account: 2232 - Circuit Equipment



SBC Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

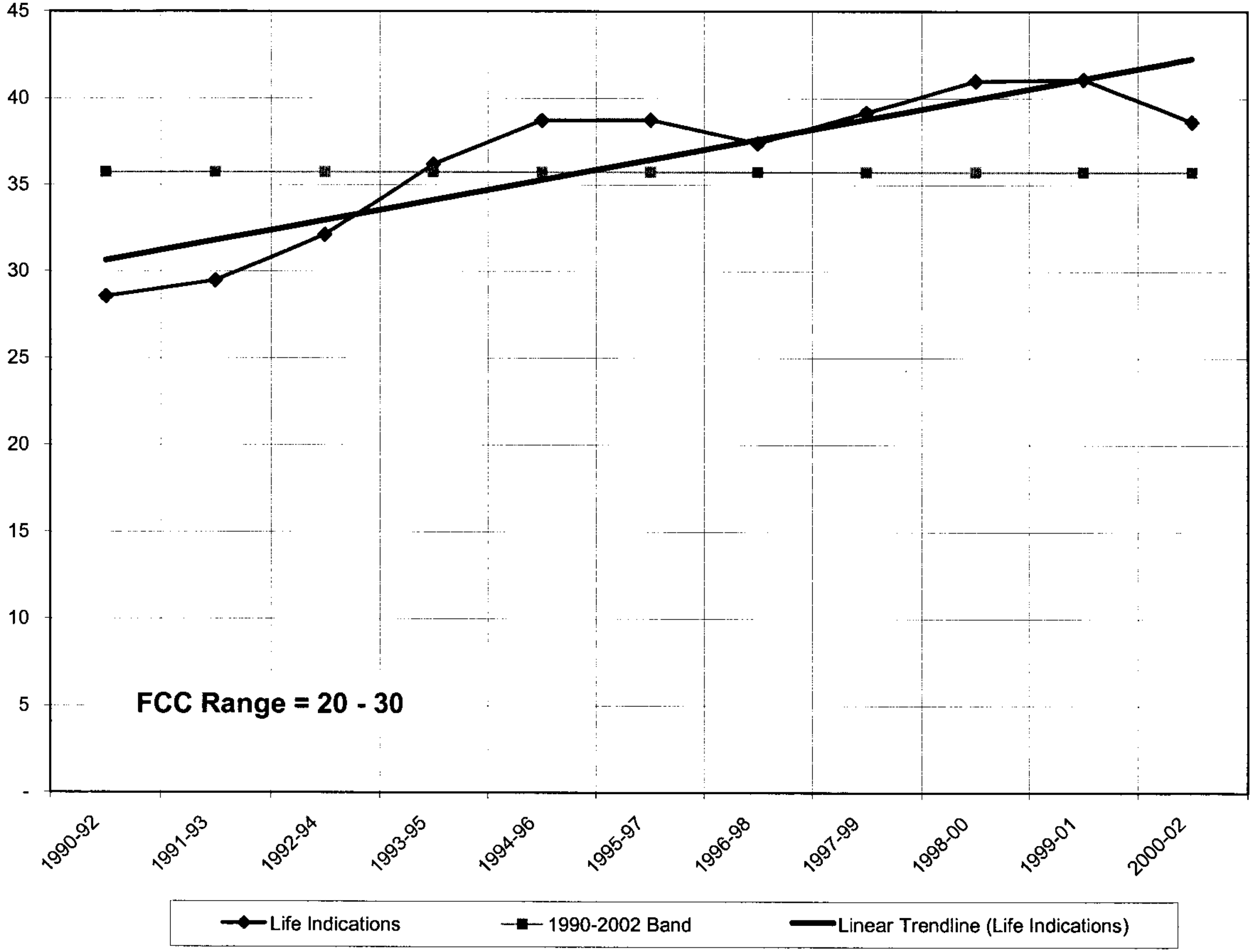
Account 2421 - Aerial Cable
($ Thousands)

								3 Year Band						
Year	**BOY Plant Balance**	**Avg. Plant Balance**	**Single Year Additions**	**Single Year Retirements**	**Addition Ratio**	**Retirement Ratio**	**Geometric Mean Life Estimate**	**3 Year Band**	**Avg. Plant Balance**	**Additions**	**Retirements**	**Addition Ratio**	**Retirement Ratio**	**Geometric Mean Life Estimate**
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	5,188,768	5,280,408	295,150	111,871	0.05590	0.02119	29.06							
1991	5,372,047	5,458,763	291,888	118,455	0.05347	0.02170	29.36							
1992	5,545,478	5,687,479	391,970	107,968	0.06892	0.01898	27.65	1990-92	16,426,649	979,008	338,294	0.05960	0.02059	28.54
1993	5,829,479	5,930,572	312,914	110,729	0.05276	0.01867	31.86	1991-93	17,076,813	996,772	337,152	0.05837	0.01974	29.46
1994	6,031,665	6,128,791	284,291	90,040	0.04639	0.01469	38.31	1992-94	17,746,841	989,175	308,737	0.05574	0.01740	32.11
1995	6,225,916	6,356,927	338,242	76,220	0.05321	0.01199	39.59	1993-95	18,416,290	935,447	276,989	0.05079	0.01504	36.18
1996	6,487,938	6,639,001	379,449	77,323	0.05715	0.01165	38.76	1994-96	19,124,718	1,001,982	243,583	0.05239	0.01274	38.71
1997	6,790,063	6,966,948	431,259	77,494	0.06190	0.01112	38.11	1995-97	19,962,876	1,148,950	231,037	0.05755	0.01157	38.75
1998	7,143,833	7,277,589	375,584	108,072	0.05161	0.01485	36.12	1996-98	20,883,538	1,186,292	262,889	0.05681	0.01259	37.40
1999	7,411,345	7,562,322	377,982	76,028	0.04998	0.01005	44.61	1997-99	21,806,859	1,184,825	261,594	0.05433	0.01200	39.17
2000	7,713,299	7,865,461	389,006	84,683	0.04946	0.01077	43.34	1998-00	22,705,372	1,142,572	268,783	0.05032	0.01184	40.97
2001	8,017,622	8,192,352	458,625	109,166	0.05598	0.01333	36.61	1999-01	23,620,134	1,225,613	269,877	0.05189	0.01143	41.07
2002	8,367,081	8,497,325	392,467	131,979	0.04619	0.01553	37.34	2000-02	24,555,137	1,240,098	325,828	0.05050	0.01327	38.63
1990-2002	86,124,534	87,843,935	4,718,827	1,280,028	0.05372	0.01457	35.74							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: SBC
Account: 2421 - Aerial Cable

Geometric Mean Rolling Band Analysis
Life Indications - Account 2421 - Aerial Cable



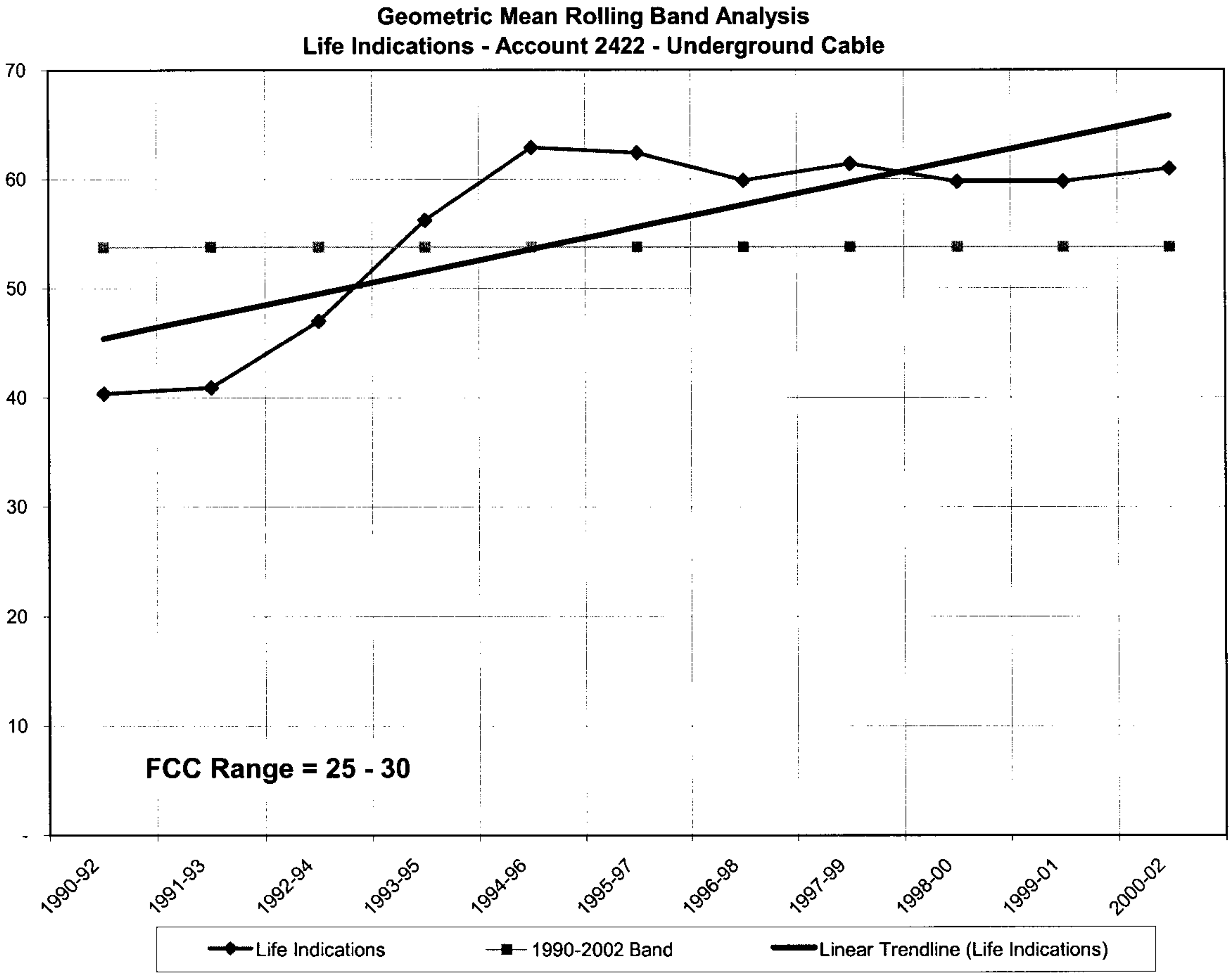
SBC Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2422 - Underground Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	7,189,246	7,332,768	366,743	79,699	0.05001	0.01087	42.89							
1991	7,476,290	7,620,422	382,766	94,502	0.05023	0.01240	40.07							
1992	7,764,553	8,009,892	563,219	72,543	0.07032	0.00906	39.63	1990-92	22,963,082	1,312,728	246,744	0.05717	0.01075	40.35
1993	8,255,231	8,397,458	378,054	93,601	0.04502	0.01115	44.64	1991-93	24,027,772	1,324,039	260,646	0.05510	0.01085	40.90
1994	8,539,685	8,675,541	329,699	57,987	0.03800	0.00668	62.74	1992-94	25,082,891	1,270,972	224,131	0.05067	0.00894	47.00
1995	8,811,397	8,952,840	336,661	53,775	0.03760	0.00601	66.54	1993-95	26,025,839	1,044,414	205,363	0.04013	0.00789	56.20
1996	9,094,283	9,281,765	430,206	55,245	0.04635	0.00595	60.21	1994-96	26,910,146	1,096,566	167,007	0.04075	0.00621	62.88
1997	9,469,247	9,725,023	554,493	42,942	0.05702	0.00442	63.02	1995-97	27,959,628	1,321,360	151,962	0.04726	0.00544	62.40
1998	9,980,798	10,196,953	495,110	62,800	0.04855	0.00616	57.83	1996-98	29,203,741	1,479,809	160,987	0.05067	0.00551	59.83
1999	10,413,108	10,654,159	533,097	50,996	0.05004	0.00479	64.62	1997-99	30,576,135	1,582,700	156,738	0.05176	0.00513	61.39
2000	10,895,210	11,225,650	712,677	51,798	0.06349	0.00461	58.43	1998-00	32,076,762	1,740,884	165,594	0.05427	0.00516	59.74
2001	11,556,089	11,970,065	876,398	48,446	0.07322	0.00405	58.09	1999-01	33,849,874	2,122,172	151,240	0.06269	0.00447	59.75
2002	12,384,041	12,631,519	555,886	60,931	0.04401	0.00482	68.63	2000-02	35,827,233	2,144,961	161,175	0.05987	0.00450	60.93
1990-2002	121,829,178	124,674,053	6,515,009	825,265	0.05226	0.00662	53.77							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: SBC
Account: 2422 - Underground Cable



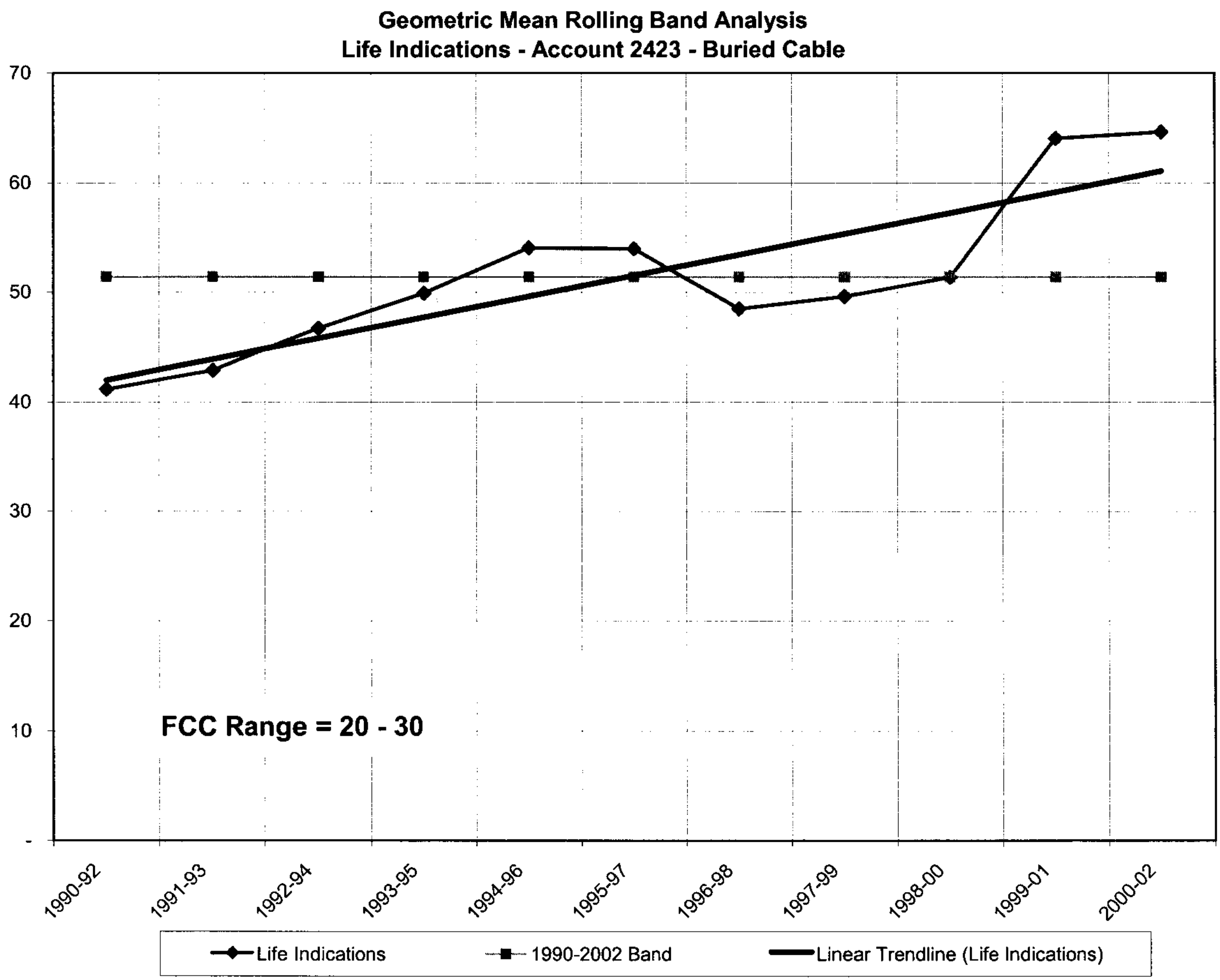
SBC Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2423 - Buried Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	10,404,273	10,687,446	673,800	107,455	0.06305	0.01005	39.72							
1991	10,970,618	11,218,666	623,751	127,655	0.05560	0.01138	39.76							
1992	11,466,714	11,739,205	652,463	107,480	0.05558	0.00916	44.33	1990-92	33,645,317	1,950,014	342,590	0.05796	0.01018	41.16
1993	12,011,696	12,287,106	664,100	113,281	0.05405	0.00922	44.80	1991-93	35,244,977	1,940,314	348,416	0.05505	0.00989	42.87
1994	12,562,516	12,809,710	598,589	104,201	0.04673	0.00813	51.29	1992-94	36,836,021	1,915,152	324,962	0.05199	0.00882	46.69
1995	13,056,904	13,312,526	610,204	98,960	0.04584	0.00743	54.17	1993-95	38,409,342	1,872,893	316,442	0.04876	0.00824	49.89
1996	13,568,148	13,917,798	773,017	73,717	0.05554	0.00530	58.30	1994-96	40,040,034	1,981,810	276,878	0.04950	0.00692	54.05
1997	14,267,448	14,685,176	924,301	88,845	0.06294	0.00605	51.25	1995-97	41,915,500	2,307,522	261,522	0.05505	0.00624	53.96
1998	15,102,904	15,406,873	778,175	170,238	0.05051	0.01105	42.33	1996-98	44,009,847	2,475,493	332,800	0.05625	0.00756	48.49
1999	15,710,841	16,053,179	774,968	90,294	0.04828	0.00562	60.69	1997-99	46,145,228	2,477,444	349,377	0.05369	0.00757	49.60
2000	16,395,517	16,803,422	913,339	97,529	0.05435	0.00580	56.30	1998-00	48,263,474	2,466,482	358,061	0.05110	0.00742	51.36
2001	17,211,327	17,651,621	930,426	49,838	0.05271	0.00282	81.97	1999-01	50,508,222	2,618,733	237,661	0.05185	0.00471	64.02
2002	18,091,915	18,400,017	728,984	112,781	0.03962	0.00613	64.17	2000-02	52,855,060	2,572,749	260,148	0.04868	0.00492	64.61
1990-2002	180,820,821	184,972,744	9,646,117	1,342,274	0.05215	0.00726	51.41							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: SBC
Account: 2423 - Buried Cable



Verizon Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

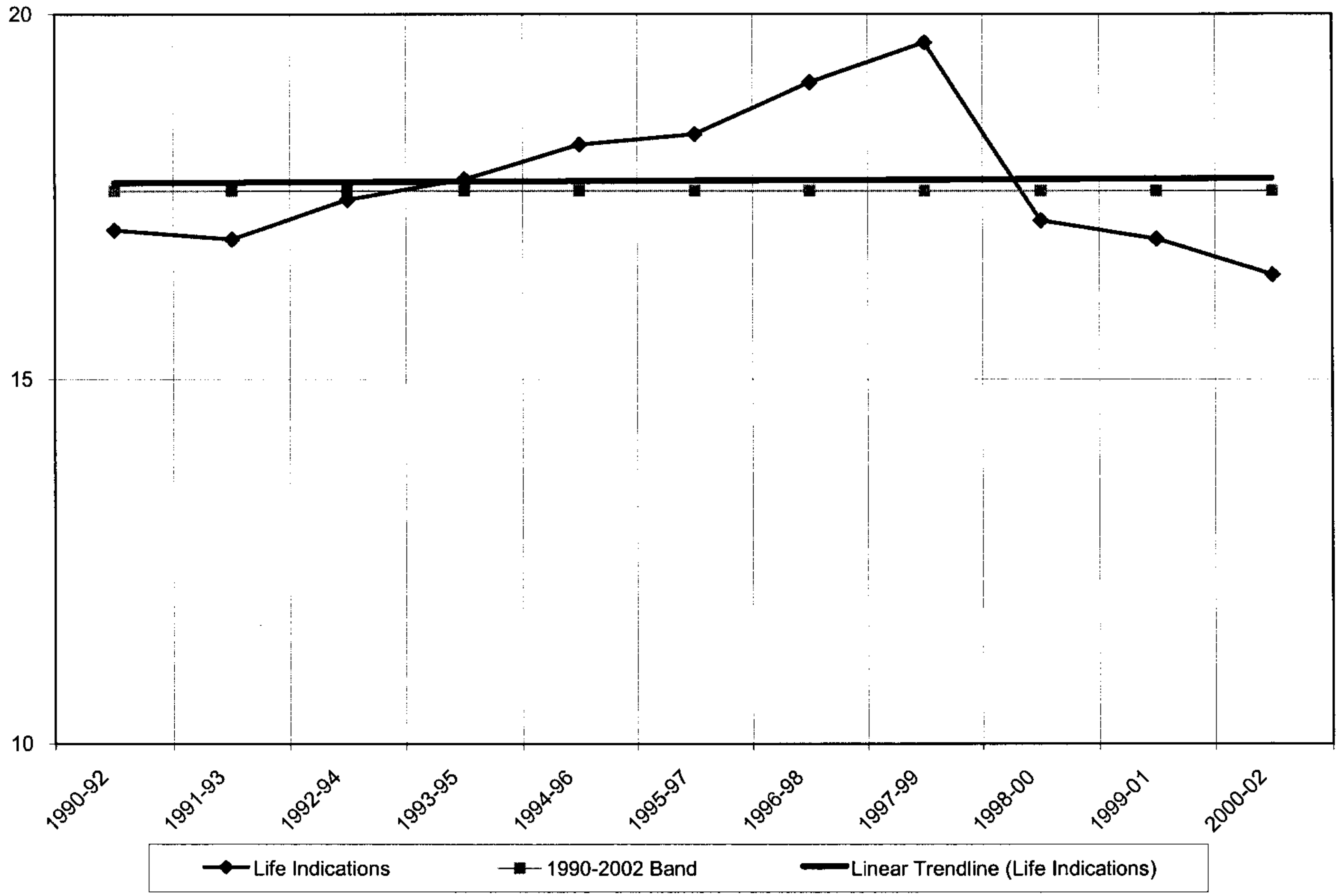
Total Plant in Service
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	78,414,892	80,266,098	7,071,199	3,368,788	0.08810	0.04197	16.45							
1991	82,117,303	83,579,470	6,761,448	3,837,112	0.08090	0.04591	16.41							
1992	85,041,637	88,090,913	7,099,278	3,233,155	0.08059	0.03670	18.39	1990-92	251,936,481	20,931,925	10,439,055	0.08308	0.04144	17.04
1993	91,140,189	93,227,189	7,327,023	4,500,943	0.07859	0.04828	16.23	1991-93	264,897,572	21,187,749	11,571,210	0.07998	0.04368	16.92
1994	95,314,189	97,459,775	7,518,799	3,885,509	0.07715	0.03987	18.03	1992-94	278,777,877	21,945,100	11,619,607	0.07872	0.04168	17.46
1995	99,605,360	102,009,960	7,612,677	3,737,849	0.07463	0.03664	19.12	1993-95	292,696,923	22,458,499	12,124,301	0.07673	0.04142	17.74
1996	104,414,559	106,340,762	8,274,194	4,421,789	0.07781	0.04158	17.58	1994-96	305,810,496	23,405,670	12,045,147	0.07654	0.03939	18.21
1997	108,266,964	110,608,173	8,750,357	4,095,749	0.07911	0.03703	18.48	1995-97	318,958,894	24,637,228	12,255,387	0.07724	0.03842	18.36
1998	112,949,381	116,094,956	9,345,944	3,054,793	0.08050	0.02631	21.73	1996-98	333,043,890	26,370,495	11,572,331	0.07918	0.03475	19.06
1999	119,240,531	122,261,323	10,117,860	4,076,275	0.08276	0.03334	19.04	1997-99	348,964,452	28,214,161	11,226,817	0.08085	0.03217	19.61
2000	125,282,115	127,485,303	11,796,533	7,390,161	0.09253	0.05797	13.65	1998-00	365,841,582	31,260,337	14,521,229	0.08545	0.03969	17.17
2001	129,688,490	133,262,400	11,854,096	3,708,717	0.08895	0.02783	20.10	1999-01	383,009,025	33,768,489	15,175,153	0.08817	0.03962	16.92
2002	136,836,309	137,987,007	9,160,460	6,859,065	0.06639	0.04971	17.41	2000-02	398,734,709	32,811,089	17,957,943	0.08229	0.04504	16.43
1990-2002	1,368,311,919	1,398,673,325	112,689,868	56,169,905	0.08057	0.04016	17.58							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002
Note: Excludes Customer Premises Wiring

Company: Verizon
Account: Total Plant in Service

Geometric Mean Rolling Band Analysis
Life Indications - Total Plant in Service



Verizon Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

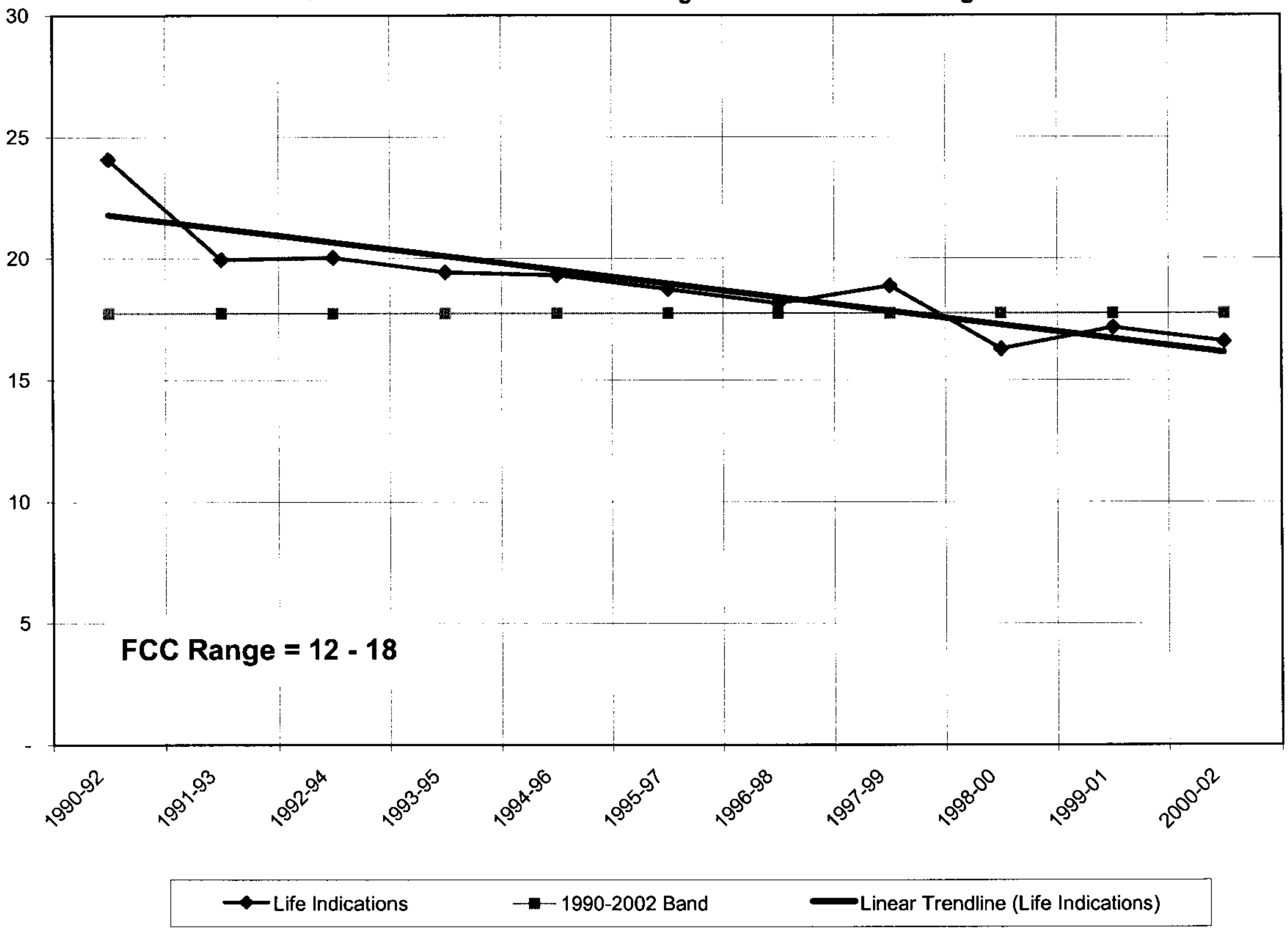
Account 2212 - Digital Electronic Switching
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	10,639,221	11,377,130	1,625,318	149,501	0.14286	0.01314	23.08							
1991	12,115,038	12,790,117	1,571,614	221,458	0.12288	0.01731	21.68							
1992	13,465,195	14,583,414	1,912,429	136,183	0.13114	0.00934	28.58	1990-92	38,750,660	5,109,361	507,142	0.13185	0.01309	24.07
1993	15,701,633	16,466,458	1,774,556	561,150	0.10777	0.03408	16.50	1991-93	43,839,989	5,258,599	918,791	0.11995	0.02096	19.94
1994	17,231,283	17,799,448	1,459,034	459,482	0.08197	0.02581	21.74	1992-94	48,849,320	5,146,019	1,156,815	0.10534	0.02368	20.02
1995	18,367,613	18,995,344	1,596,470	537,190	0.08405	0.02828	20.51	1993-95	53,261,250	4,830,060	1,557,822	0.09069	0.02925	19.42
1996	19,623,075	20,296,147	2,060,154	714,011	0.10150	0.03518	16.73	1994-96	57,090,939	5,115,658	1,710,683	0.08961	0.02996	19.30
1997	20,969,219	21,762,705	2,164,045	577,073	0.09944	0.02652	19.47	1995-97	61,054,196	5,820,669	1,828,274	0.09534	0.02995	18.72
1998	22,556,191	23,449,240	2,449,743	663,646	0.10447	0.02830	18.39	1996-98	65,508,092	6,673,942	1,954,730	0.10188	0.02984	18.14
1999	24,342,289	24,762,708	1,759,850	919,012	0.07107	0.03711	19.47	1997-99	69,974,653	6,373,638	2,159,731	0.09108	0.03086	18.86
2000	25,183,127	25,408,979	2,111,918	1,660,212	0.08312	0.06534	13.57	1998-00	73,620,927	6,321,511	3,242,870	0.08587	0.04405	16.26
2001	25,634,831	25,978,647	1,795,033	905,332	0.06910	0.03485	20.38	1999-01	76,150,334	5,666,801	3,484,556	0.07442	0.04576	17.14
2002	26,322,463	26,242,333	1,405,271	1,565,532	0.05355	0.05966	17.69	2000-02	77,629,959	5,312,222	4,131,076	0.06843	0.05321	16.57
1990-2002	252,151,178	259,912,669	23,685,435	9,069,782	0.09113	0.03490	17.73							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Verizon
Account: 2212 - Digital Electronic Switching

Geometric Mean Rolling Band Analysis
Life Indications - Account 2212 - Digital Electronic Switching



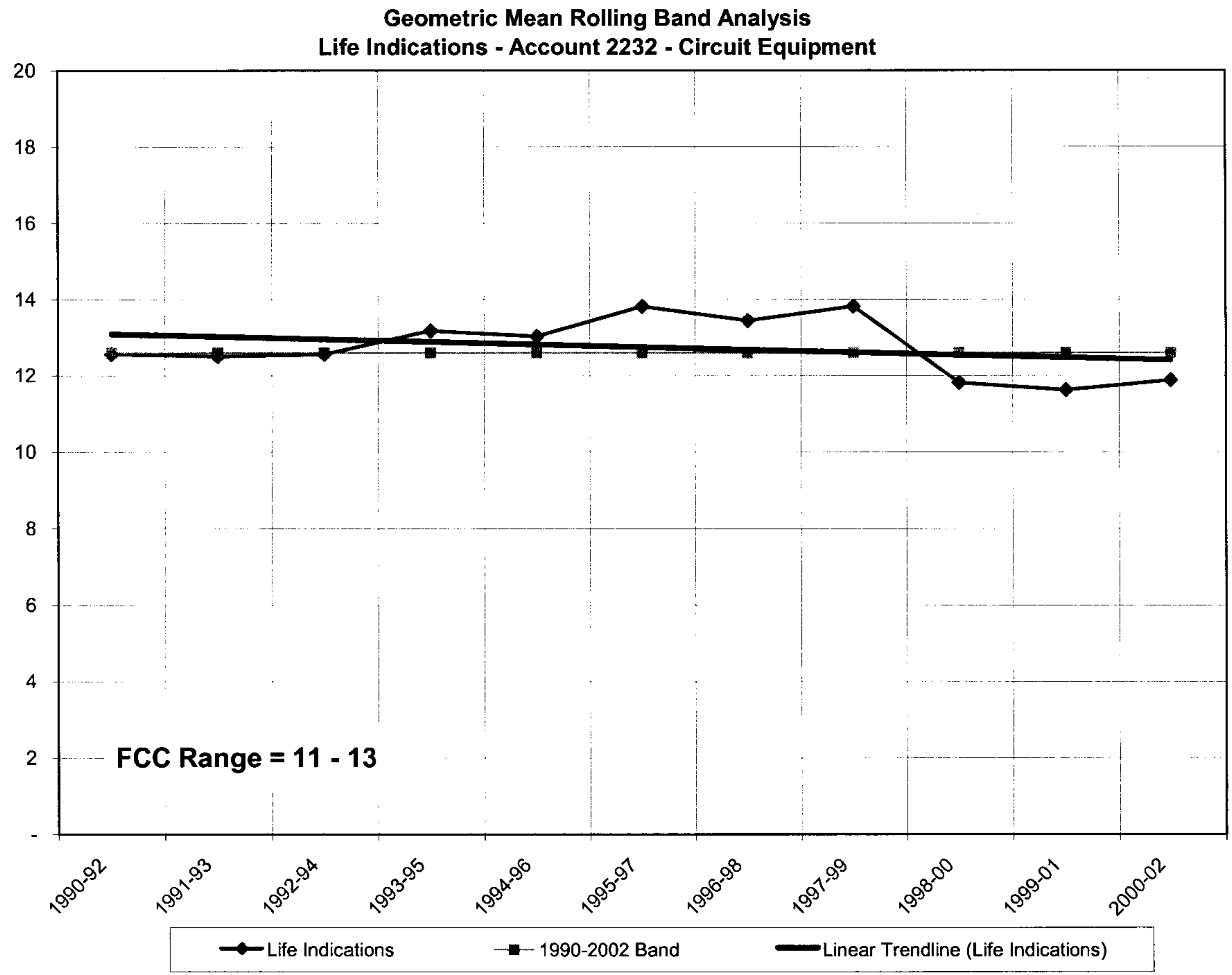
Verizon Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2232 - Circuit Equipment
($ Thousands)

									3 Year Band					
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	12,928,845	13,163,337	1,280,972	811,988	0.09731	0.06169	12.91							
1991	13,397,829	13,493,472	1,204,115	1,012,830	0.08924	0.07506	12.22							
1992	13,589,115	14,015,159	1,483,604	815,673	0.10586	0.05820	12.74	1990-92	40,671,968	3,968,691	2,640,491	0.09758	0.06492	12.56
1993	14,441,203	14,872,614	1,589,298	857,891	0.10686	0.05768	12.74	1991-93	42,381,245	4,277,017	2,686,394	0.10092	0.06339	12.50
1994	15,304,025	15,971,517	2,070,500	809,046	0.12964	0.05066	12.34	1992-94	44,859,290	5,143,402	2,482,610	0.11466	0.05534	12.55
1995	16,639,009	17,251,154	1,874,749	741,922	0.10867	0.04301	14.63	1993-95	48,095,285	5,534,547	2,408,859	0.11507	0.05009	13.17
1996	17,863,298	18,389,176	2,098,312	1,046,558	0.11411	0.05691	12.41	1994-96	51,611,847	6,043,561	2,597,526	0.11710	0.05033	13.03
1997	18,915,054	19,806,228	2,487,372	705,023	0.12559	0.03560	14.96	1995-97	55,446,558	6,460,433	2,493,503	0.11652	0.04497	13.81
1998	20,697,402	21,644,643	2,819,206	924,729	0.13025	0.04272	13.41	1996-98	59,840,047	7,404,890	2,676,310	0.12374	0.04472	13.44
1999	22,591,883	23,773,121	3,316,315	953,836	0.13950	0.04012	13.37	1997-99	65,223,992	8,622,893	2,583,588	0.13220	0.03961	13.82
2000	24,954,359	26,366,958	4,439,184	1,613,985	0.16836	0.06121	9.85	1998-00	71,784,722	10,574,705	3,492,550	0.14731	0.04865	11.81
2001	27,779,557	29,428,629	4,639,963	1,216,116	0.15767	0.04132	12.39	1999-01	79,568,708	12,395,462	3,783,937	0.15578	0.04756	11.62
2002	31,077,701	31,822,923	3,120,549	1,630,106	0.09806	0.05122	14.11	2000-02	87,618,510	12,199,696	4,460,207	0.13924	0.05090	11.88
1990-2002	250,179,280	259,998,930	32,424,139	13,139,703	0.12471	0.05054	12.60							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Verizon
Account: 2232 - Circuit Equipment



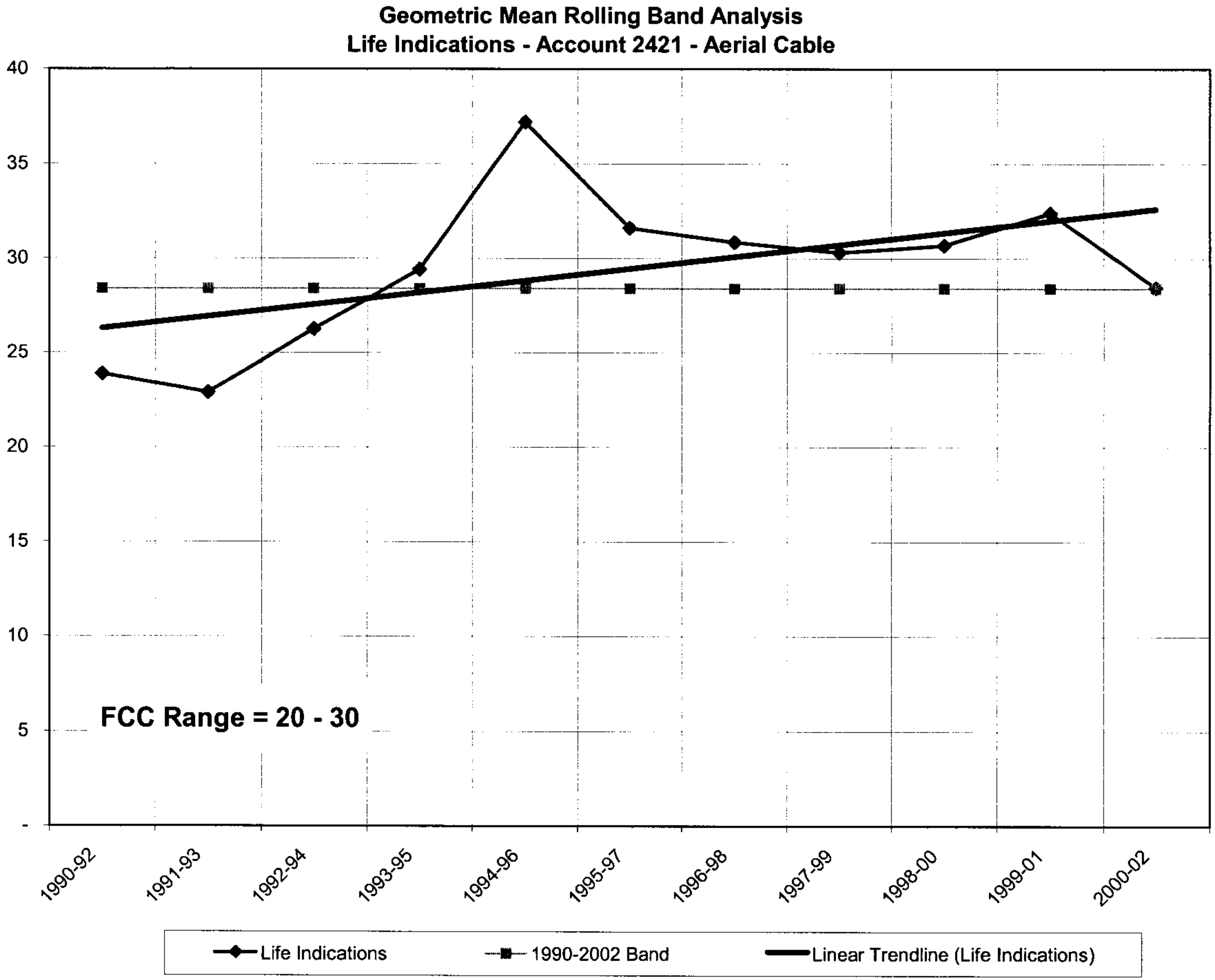
Verizon Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2421 - Aerial Cable
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	10,611,688	10,956,885	914,982	224,589	0.08351	0.02050	24.17							
1991	11,302,081	11,586,845	895,273	325,746	0.07727	0.02811	21.46							
1992	11,871,609	12,330,721	896,045	238,819	0.07267	0.01937	26.66	1990-92	34,874,451	2,706,300	789,154	0.07760	0.02263	23.86
1993	12,789,833	13,168,299	920,634	403,820	0.06991	0.03067	21.60	1991-93	37,085,865	2,711,952	968,385	0.07313	0.02611	22.88
1994	13,546,764	13,880,803	828,114	208,769	0.05966	0.01504	33.38	1992-94	39,379,822	2,644,793	851,408	0.06716	0.02162	26.24
1995	14,214,841	14,578,564	797,260	174,688	0.05469	0.01198	39.06	1993-95	41,627,665	2,546,008	787,277	0.06116	0.01891	29.40
1996	14,942,287	15,320,883	918,585	161,396	0.05996	0.01053	39.79	1994-96	43,780,249	2,543,959	544,853	0.05811	0.01245	37.19
1997	15,699,478	16,020,878	1,065,655	422,855	0.06652	0.02639	23.87	1995-97	45,920,325	2,781,500	758,939	0.06057	0.01653	31.61
1998	16,342,278	16,785,162	1,092,365	206,595	0.06508	0.01231	35.33	1996-98	48,126,922	3,076,605	790,846	0.06393	0.01643	30.85
1999	17,228,045	17,610,979	1,009,929	244,066	0.05735	0.01386	35.47	1997-99	50,417,018	3,167,949	873,516	0.06283	0.01733	30.31
2000	17,993,912	18,209,956	946,161	514,073	0.05196	0.02823	26.11	1998-00	52,606,096	3,048,455	964,734	0.05795	0.01834	30.68
2001	18,426,000	18,779,805	1,007,121	201,774	0.05363	0.01074	41.66	1999-01	54,600,739	2,963,211	959,913	0.05427	0.01758	32.37
2002	19,133,609	19,141,232	742,925	727,679	0.03881	0.03802	26.03	2000-02	56,130,993	2,696,207	1,443,526	0.04803	0.02572	28.45
1990-2002	194,102,425	198,371,009	12,035,049	4,054,869	0.06067	0.02044	28.40							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Verizon
Account: 2421 - Aerial Cable



Verizon Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

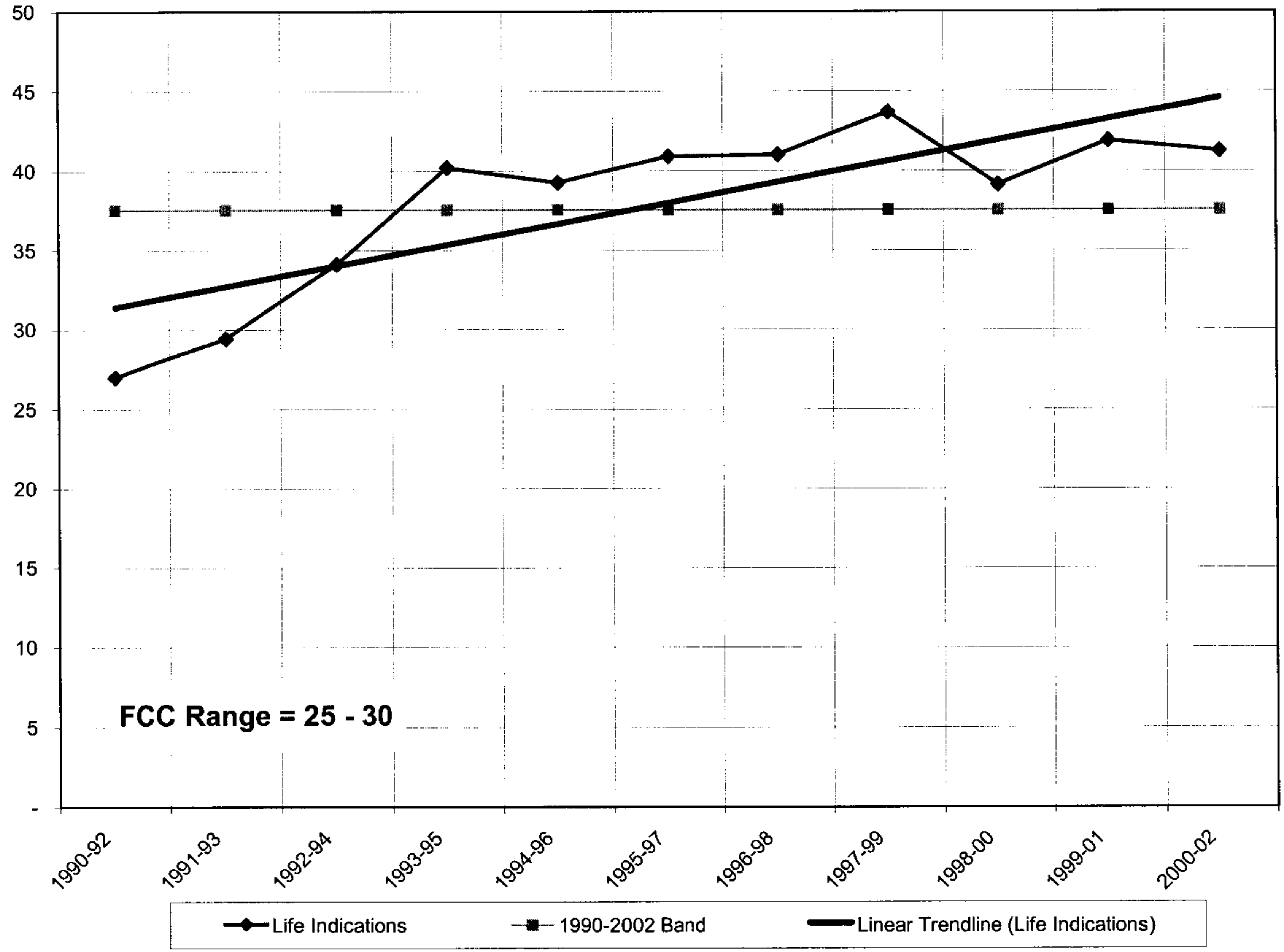
Account 2422 - Underground Cable
($ Thousands)

Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band: 3 Year Band	3 Year Band: Avg. Plant Balance	3 Year Band: Additions	3 Year Band: Retirements	3 Year Band: Addition Ratio	3 Year Band: Retirement Ratio	3 Year Band: Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	6,841,011	7,067,566	539,697	86,587	0.07636	0.01225	32.69							
1991	7,294,121	7,480,043	537,392	165,548	0.07184	0.02213	25.08							
1992	7,665,965	7,818,830	462,769	193,938	0.05919	0.02480	26.10	1990-92	22,366,439	1,539,858	446,073	0.06885	0.01994	26.99
1993	7,971,695	8,144,623	409,651	90,790	0.05030	0.01115	42.23	1991-93	23,443,496	1,409,812	450,276	0.06014	0.01921	29.42
1994	8,317,550	8,479,877	430,590	109,473	0.05078	0.01291	39.06	1992-94	24,443,330	1,303,010	394,201	0.05331	0.01613	34.11
1995	8,642,204	8,799,689	390,361	124,786	0.04436	0.01418	39.87	1993-95	25,424,189	1,230,602	325,049	0.04840	0.01279	40.20
1996	8,957,174	9,072,659	373,993	143,023	0.04122	0.01576	39.23	1994-96	26,352,225	1,194,944	377,282	0.04535	0.01432	39.25
1997	9,188,144	9,366,890	453,900	96,409	0.04846	0.01029	44.78	1995-97	27,239,238	1,218,254	364,218	0.04472	0.01337	40.89
1998	9,545,636	9,737,525	499,995	116,219	0.05135	0.01194	40.39	1996-98	28,177,074	1,327,888	355,651	0.04713	0.01262	41.00
1999	9,929,413	10,118,403	477,989	100,009	0.04724	0.00988	46.28	1997-99	29,222,817	1,431,884	312,637	0.04900	0.01070	43.68
2000	10,307,392	10,447,541	476,439	196,144	0.04560	0.01877	34.18	1998-00	30,303,468	1,454,423	412,372	0.04800	0.01361	39.13
2001	10,587,689	10,805,235	536,116	80,245	0.04962	0.00743	52.09	1999-01	31,371,178	1,490,544	376,398	0.04751	0.01200	41.88
2002	11,022,781	11,182,149	462,088	143,352	0.04132	0.01282	43.45	2000-02	32,434,925	1,474,643	419,741	0.04546	0.01294	41.23
1990-2002	116,270,775	118,521,028	6,050,980	1,646,523	0.05105	0.01389	37.55							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Verizon
Account: 2422 - Underground Cable

Geometric Mean Rolling Band Analysis
Life Indications - Account 2422 - Underground Cable



Verizon Communications
Telephone Plant in Service
Geometric Mean Turnover Analysis

Account 2423 - Buried Cable
($ Thousands)

								3 Year Band						
Year	BOY Plant Balance	Avg. Plant Balance	Single Year Additions	Single Year Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate	3 Year Band	Avg. Plant Balance	Additions	Retirements	Addition Ratio	Retirement Ratio	Geometric Mean Life Estimate
	a	b=(a+(a+1))/2	c	d	e = c/b	f = d/b	g = 1/sqrt(e*f)	h	i	j	k	l = j/i	m = k/i	n = 1/sqrt(l*m)
1990	7,153,207	7,443,983	691,572	110,020	0.09290	0.01478	26.99							
1991	7,734,759	7,978,392	646,590	159,323	0.08104	0.01997	24.86							
1992	8,222,025	8,903,267	624,172	113,620	0.07011	0.01276	33.43	1990-92	24,325,642	1,962,334	382,963	0.08067	0.01574	28.06
1993	9,584,508	9,985,922	757,433	379,671	0.07585	0.03802	18.62	1991-93	26,867,580	2,028,195	652,614	0.07549	0.02429	23.35
1994	10,387,335	10,847,226	742,031	135,865	0.06841	0.01253	34.16	1992-94	29,736,414	2,123,636	629,156	0.07142	0.02116	25.73
1995	11,307,117	11,724,159	671,780	84,746	0.05730	0.00723	49.14	1993-95	32,557,307	2,171,244	600,282	0.06669	0.01844	28.52
1996	12,141,201	12,490,697	790,378	91,386	0.06328	0.00732	46.48	1994-96	35,062,082	2,204,189	311,997	0.06287	0.00890	42.28
1997	12,840,192	13,177,803	844,424	169,204	0.06408	0.01284	34.86	1995-97	37,392,658	2,306,582	345,336	0.06169	0.00924	41.90
1998	13,515,413	13,921,415	904,687	92,682	0.06499	0.00666	48.08	1996-98	39,589,914	2,539,489	353,272	0.06414	0.00892	41.80
1999	14,327,416	14,663,259	841,958	170,274	0.05742	0.01161	38.73	1997-99	41,762,476	2,591,069	432,160	0.06204	0.01035	39.47
2000	14,999,101	14,600,711	822,775	1,619,557	0.05635	0.11092	12.65	1998-00	43,185,384	2,569,420	1,882,513	0.05950	0.04359	19.64
2001	14,202,320	14,350,752	820,453	146,929	0.05717	0.01024	41.33	1999-01	43,614,721	2,485,186	1,936,760	0.05698	0.04441	19.88
2002	14,499,183	14,548,314	639,115	540,854	0.04393	0.03718	24.74	2000-02	43,499,776	2,282,343	2,307,340	0.05247	0.05304	18.96
1990-2002	150,913,777	154,635,896	9,797,368	3,814,131	0.06336	0.02467	25.30							

Source: ARMIS 43-02 Reports, Table B-1, 1990-2002

Company: Verizon
Account: 2423 - Buried Cable